



July 1994

Animal Keepers' Forum

OL
6
598
VCP



Dedicated to Professional Animal Care

ANIMAL KEEPERS' FORUM, 635 S.W. Gage Blvd., Topeka, KS 66606
Phone: 1-800-242-4519 (U.S.) 1-800-468-1966 (Canada) FAX 913-273-1980

Managing Editor: Susan Chan

July 1994

Associate Editors/Enrichment Options Coordinators:

Volume Twenty-one

Kayla Grams, Topeka Zoo & Gretchen Ziegler, Wildlife Safari Park

Number Seven

Book Review Coordinators: Melba T. Brown, National Zoo and Tom Aversa, Franklin Park Zoo

Legislative Outlook Column Coordinator: Phyl Nilson Wojcik, John Ball Zoo

Animal Keepers' Forum (ISSN 0164-9531) is a monthly journal of the American Association of Zoo Keepers, Inc. Ten dollars of each membership fee goes toward the annual publication costs of ***Animal Keepers' Forum***. Third Class postage paid at Topeka, KS. Postmaster: Please send address changes to:

American Association of Zoo Keepers, Inc.

Administrative Offices, 635 S.W. Gage Blvd., Topeka, KS 66606-2066

Barbara Manspeaker, Administrative Secretary

Acting Executive Director: Ed Hansen, AAZK, Inc.

BOARD OF DIRECTORS

Janet McCoy, Metro Washington Park Zoo, Portland, OR 97221-2799

President

Rachél Rogers, San Diego Zoo, San Diego, CA 92112

Vice President

Mark de Denus, Assiniboine Park Zoo, Winnipeg, Manitoba, Canada

Alan Baker, Burnet Park Zoo, Syracuse, NY 13204-2504

Ric Urban, Houston Zoological Garden, Houston, TX 77030

COMMITTEES

Nominations & Elections

By-laws

Chair - Vacancy

Chair - Vacancy

Conservation, Preservation & Restoration

Ethics

Chair - Brett Sellers, Metro Washington Park Zoo

Chair - Rachél Watkins Rogers, San Diego Zoo

Annual Conferences

Research/Grants

Coordinator - Ed Hansen, AAZK, Inc.

Chair - Susan Barnard, Zoo Atlanta

Awards

Publications Funding

Chair - Anna Michel, Metro Washington Park Zoo

David Luce, Chaffee Zoological of Fresno

Exhibit Design Resource Notebook

AAZK Chapter Logo Products

Michael Demlong, Phoenix Zoo

David Morrow, Wichita, KS

AAZK Inspection Standards Manual

Enrichment Committee

Rachél Watkins Rogers, San Diego Zoo

Chair currently being solicited

MEMBERSHIP SERVICES

L.I.N.K. Coordinator

Animal Data Transfer Form

Mark de Denus, Assiniboine Park Zoo

Bernie Feldman, Burnet Park Zoo

Zoo University List

Staff Exchange

Mike Illig, Metro Washington Park Zoo

Dale Frerking, Kansas City Zoo

Keeper Accommodations List

AAZK Historian

Todd Cleveland, Denver Zoo

Heidi Fowle, Discovery Island

International Affairs

Lesa Scheifele, Norwich, CT - Coordinator Foreign AAZK Members/Sister Organizations

Lois Johannes, L. A. Zoo - Coordinator Foreign Keeper Sponsorship Program

AAZK Training Materials

Laura Treschel, Continuing Education Coordinator, Minnesota Zoological Gardens

Christina Simmons, Keeper Training Package Coordinator, San Diego Zoo

PRESIDENTIAL ADVISORS

AZA Liaison

Elephant Managers Association

Ed Hansen, IPP, AAZK, Inc.

Ron Ringer, San Diego Zoo

Bowling for Rhinos

CAZPA Liaison

Patty Pearthree, Indianapolis Zoo

Tom Mantil, Metro Toronto Zoo

AAZK PUBLICATIONS : CONTINUING DATA COLLECTION

Zoo Infant Development Project - Harmony Frazier, Woodland Park Zoo (Mammals)

Teri Maas/Maggie Liguori, Philadelphia Zoo (Birds/Nonpasserines); Kim Livingstone, L.A. Zoo (Passerines)

Jeanne Boccongelli, Newark Museum Mini-Zoo (Reptiles); Linelle Lone, Denver Zoo (Amphibians)

Diet Notebook, Mammals, Vol. II - Susan Bunn Spencer, Grand Rapids, MI



printed on recycled paper

Table of Contents

Scoops & Scuttlebutt.....	222
A Friend I'll Never Forget (In Memory of David Lee Marshall).....	223
Coming Events.....	224 - 225
The Exhibit Design Resource Notebook/Information Please.....	226
Notice to Membership on Board of Director Vacancy.....	227
Message from the President (Establishment of Executive Director Position).....	228
From the Acting Executive Director/Information Please.....	229
Mid-Year AAZK Board of Director Minutes.....	230 - 233
AAZK Announces New Professional/Contributing Members.....	233
Births & Hatchings.....	234 - 235
Proposed By-Law Amendment - Executive Director (Notice to Membership).....	235
L.I.N.K. List of Regional Coordinators.....	236
Letters to the Editor.....	237 - 238
Legislative Outlook.....	239 - 240
Behind the Iron Bars: A Look at Zoos of the Former Society Union, Part I.....	241 - 246
Enrichment Options (New Horizons in Animal Care).....	247 - 249
Enrichment Opportunities for Young Lovebirds in Captivity.....	250 - 256
Victory for the Whales - Antarctic Sanctuary Established by IWC.....	256
Chapter News.....	257 - 258
Opportunity Knock.....	259 - 260
Conference '94 (Registration Form, Additional Hotel Info, Etc.).....	TAN INSERT
1995 BOD Election Information/Nominator and Nominee Biographical Forms.....	BLUE INSERT

Information for Contributors

Animal Keepers's Forum publishes original papers and news items of interest to the animal keeping profession. Non-members are welcome to submit articles for consideration.

Articles should be typed or hand-printed and double-spaced. All illustrations, graphs, charts and tables should be clearly marked, in final form, and should fit in a page size **no greater than 15cm x 25½cm (6" x 10")**. Literature used should be cited in the text (Brown, 1986) and alphabetically in final bibliography. Avoid footnotes. Include scientific name of species (as per ISIS) the first time it is used. Thereafter use common name. Use metric system for weights and measurements (standard equivalents may be noted in parenthesis). Use the continental dating system (day-month-year). Times should be listed as per the 24-hour clock (0800, 1630 hrs. etc.). Black and white photos **only** are accepted. Color slides should be converted to black and white prints (minimum size 3" x 5") before submission. Clearly marked captions should accompany photos. Please list photo credit.

Articles sent to *Animal Keepers' Forum* will be reviewed by the editorial staff for publication. Articles of a research or technical nature will be submitted to one or more of the zoo professionals who serve as referees for *AKF*. No commitment is made to the author, but an effort will be made to publish articles as soon as possible. Lengthy articles may be separated into monthly installments at the discretion of the editor. The editor reserves the right to edit material without consultation unless approval is requested in writing by the author. Materials submitted will not be returned unless accompanied by a stamped, self-addressed envelope. Telephone or FAX contributions of late-breaking news or last-minute insertions are accepted as space allows. However, long articles must be sent by U.S. mail. Phone is (913) 272-5821 Ext. 31. FAX (913) 273-1980.

DEADLINE FOR EACH EDITION IS THE 15TH OF THE PRECEDING MONTH

Articles printed do not necessarily reflect the opinions of the
Animal Keepers' Forum editorial staff or
the American Association of Zoo Keepers, Inc.
Publication does not indicate endorsement by the Association.

Items in this publication may be reprinted providing credit to this publication is given and a copy of the reprinted material is forwarded to the editor. Reprints of material appearing in this journal may be ordered from the editor. Back issues are available for \$2.00 each.

*This month's cover features "Matthew", a Clouded Leopard (*Neofelis nebulosa*) drawn by Eve Higgins, a docent at the Cleveland Metroparks Zoo, Cleveland, OH. This nocturnal species is native to Southeast Asia and lives nowhere else outside of captivity. It is found in jungles and plains, from the swamps of Nepal and Sikkim to southern China and Malaysia. Its long claws make it well-adapted for tree climbing, a site it often chooses for sleeping. It is about 45 inches in length, plus a 35-inch tail and stands about two feet high. The females produce a litter of from 2-4 after a gestation period of 90 days. Young are active in two weeks and mature at eight months. Thanks, Eve!*

Scoops and Scuttlebutt

1994 Preakness Another Smashing Success

submitted by Rosemary and Eric Krussman

This year marked the 5th anniversary of the Preakness Clean-up Project. Each year, volunteers recruited by the National Aquarium in Baltimore, The National Zoo, and The Baltimore Zoo, clean up and recycle the tons of trash left on the infield by the 90,000 racetrack fans. This year's effort, held on Sunday, 22 May, generated a total of \$9,356.76 and recycled 11,684 pounds of aluminum cans. All funds will be donated through the Ecosystem Survival Plan to add acreage to the Talamanca Biological Corridor in Costa Rica. Our congratulations to Maggie Liguori who joined us from the Philadelphia Zoo and won the raffle of two round-trip tickets to Costa Rica donated by Continental Airlines!

Conservation Parking Meter Unveiling

On 4 June 1994 - Conservation Day - the staff of the Lowry Park Zoo, Tampa, FL, officially unveiled their Conservation Parking Meter on the zoo grounds. All proceeds from the CPM are being donated to the Ecosystem Survival Plan in the memory of Char-Lee Torre, a 25-year-old elephant keeper who was fatally injured by an Asian female elephant at that facility on 30 July 1993. Funds raised by the ESP Conservation Parking Meter go to purchase endangered rainforest habitat in Central and South America.

Great Lakes Regional Council Meeting Scheduled for 20 July

The Wilds animal staff in coordination with the Columbus Zoo AAZK Chapter are hosting the summer session of the Great Lakes Regional Council meeting at The Wilds site in southeast Ohio on Wednesday, 20 July at 6:00 p.m. The Wilds, also called the International Center for the Preservation of Wild Animals (I.C.P.W.A.) is a newly created, free-ranging, breeding and research facility for endangered wildlife. The meeting will include facility tours from 3-5 p.m., a Bar-B-Q from 5-7 p.m. with the meeting following. Overnight camping sites are available. For further information contact Cathie Kreager at (614) 638-2804. All AAZK members are welcome.

AAZK Awards Research Grants/New Applicants Solicited

The AAZK Research/Grants Committee proudly announces two \$750.00 awards to the following zoo keepers: Dee Marian Nelson, Reid Park Zoo, for *Development of a Reproductive Hormone Profile for the Giant Anteater (Myrmecophaga tridactyla)*, and Mary Jo Willis and Karen R. Grzybowski, Milwaukee County Zoo, for *Hormone Correlates of Reproductive Behavior in Cinereous Vultures (Aegypius monachus)*. Congratulations to Dee, Mary Jo and Karen!

The American Association of Zoo Keepers, Inc. announces the availability of two \$750.00 research grants in the field of zoo biology. Interested applicants should direct their inquiries to Sue Barnard, Chairperson, AAZK Research/Grants Committee, Zoo Atlanta, Dept. of Herpetology, 800 Cherokee Ave. S.E., Atlanta, GA 30315. The deadline for submissions is 1 March 1995.



A Friend I'll Never Forget

I first met David Lee Marshall, Vietnam veteran turned zoo maintenance worker, when I was a zoo volunteer at the Louisville Zoological Gardens in Kentucky. I will always remember his handsome appearance being combined with a warm and genuine personality. After being hired as a keeper, sometime in the early 70's, Dave was promoted to Area Curator of the American-Australian Area of the zoo in 1978. His care and concern for the animals and people he worked with was exemplary. Dave was always on hand when you needed a hand and could be counted on in any animal escape situation.

His work at Louisville led him into some exciting areas of the zoo world. He raised Siberian tiger cubs, maintained overnight vigils on pregnant Gray seal cows and reveled at the majesty of his favorite animal of all - the Wolf. In 1979 Dave was named Louisville Zoo Keeper of the Year and attended the AZA Annual conference in St. Louis, with his expenses paid as a benefit of this honor.

In 1983 he would become a member of the staff of the Miami Metrozoo, where I too had been working for the previous three years. Dave met his wife Lisa Cusmano and they were married in 1988. In 1989 Dave was promoted to the position of Senior Keeper and became a father when his daughter Sara was born. Dave and Lisa, both keepers, made marvelous parents.

After ten years at Metro Zoo, I left Miami in 1991 to work at the San Diego Zoo. I remember my going-away party where Dave took delight in teasing me about my years as a pimply-faced zoo volunteer in Louisville. I realized how much I would miss him and all my friends at Metrozoo. Then, in August of 1992, a cataclysmic hurricane named Andrew struck and Metrozoo was wiped out.

Keepers were so much in shock they preferred to work seven days a week rather than to go home to the sight of their lives in turmoil. Dave, who was also homeless, was there encouraging the keepers each day. As the zoo sprang back, I was in touch with the keepers. Dave told me how everyone had become an extended family. I could hear in his voice the pleasure it gave him to see the staff working towards a common goal. It seemed that the bad times were waning and Metrozoo would come back.

On Monday morning, 6 June 1994, a tragedy occurred, changing the lives of those who knew Dave Marshall. David was killed by a tiger in the line of duty as an animal care professional. When I heard the news on Monday I was in shock beyond words. I tried to make sense of something that made no sense at all. In the days since his death, I have talked with countless people who knew David. I know he will be



**David Lee Marshall
1950 - 1994**

remembered for the person he was and that he died doing what he loved best in life, working with animals.

*--Rachél Watkins Rogers
Sr. Keeper, San Diego Zoo*

A memorial service was held at Metrozoo on Friday, 10 June and funeral services were held in Shelbyville, KY on Monday, 13 June. Donations are being accepted in memory of David with proceeds going to his wife and four-year-old daughter. Individuals may send donations to The Marshall Family Fund c/o The Zoological Society of Florida, 12400 SW 152 St., Miami, FL 33177. AAZK Chapters wishing to donate money in memory of David Lee Marshall may do so through THE WOLF FUND, P.O. Box 471, Moose, WY 83012.

AAZK, Inc. extends its sincere condolences to the family, friends and co-workers of David Lee Marshall. Losing one of our own touches us all.

A Tribute

*So few could live the life you did,
So few could do the things you did,
To live and die doing what one wished,
Is beyond the might of those who just exist,
We share your love for all that's wild,
And in all of us you will always reside,
So the time has come to say good-bye,
With our love and prayers may the spirit
of the timber wolf guide you on your way.*

*by Damien Kong, Education Specialist
Miami Metrozoo*

Coming Events

14th Annual Conference of the Association of Zoo Veterinary Technicians

September 25-29, 1994

Cleveland, OH

Held at the Cleveland Metro Parks Zoo. If you would like more information, please contact Rhonda Kesak, Cleveland Metro Parks Zoo, 3900 Brookside Park Drive, Cleveland, OH 44109; (216) 661-6500, ext. 259.

Association of Avian Veterinarians

Sept. 27 - Oct. 1, 1994

Reno, NV

Conference site is the Nugget Hotel. The program will offer a wide variety of continuing education opportunities with concurrent programming to satisfy a broad range of interests. A Core Seminar, Basic Avian Medicine Symposium, Main Conference, and Practical Labs will be included. For further information contact the AAV Conference Office, 2121 So. Oneida St., Ste. 325, Denver, CO 80224-2552, (303) 756-8380, FAX (303) 759-8861.

15th Annual Conference of the Elephant Managers Association

Sept. 29 - Oct. 1, 1994

Toronto, Canada

Hosted by the Metro Toronto Zoo and to be held at the Guild Inn. Registration is \$89.00 (Canadian Funds). For further information contact: John Stoner, Animal Care Manager, Metro Toronto Zoo, P.O. Box 280, West Hill, Ontario, Canada M1E 4R5, Tel: (416) 392-5965,

1994 AAZK National Conference

Oct. 9-13, 1994

Omaha, NE

Hosted by the Omaha Chapter of AAZK. Conference will include paper sessions, poster presentations, workshops, Zoolympics, a day at the Henry Doorly Zoo, and several social functions. Watch for information and registration forms in the tan inserts in AKE. Or for further information contact Diane Callaway or Lisa Cuevas at the Henry Doorly Zoo.

Small Felid Workshop

Oct. 13-16, 1994

San Diego, CA

Dr. Jill Mellen, Susan Millard and Pat Quillen will join with other specialists in presenting a small cat workshop to be held at the facility of SOS CARE (near the San Diego Wild Animal Park), which presently houses 50 plus small cats of varied species and sub-species. Early enrollment is encouraged as attendance will be limited for the benefit of the animals and participants. For further information contact: Pat Quillen, SOS CARE, 15453 Woods Valley Rd., Valley Center, CA 92082. Phone: (619) 749-3946; FAX: 619-749-1324 or call Susan Millard at (619) 738-5085. FAX: (416) 392-4979.

American Association of Zoo Veterinarians

October 23-27, 1994

Pittsburgh, PA

To be held at the Hyatt Regency Hotel. Workshops will take place on Sunday, 23 October. Conference will include sessions on reptiles and amphibians, nutrition, immobilization, avian species, primates, clinical and gross pathology, environmental enrichment, aquatic animal medicine, hoofstock and large mammals, carnivores and small mammals and

Coming Events, Continued

case reports. In addition there will be both a student and graduate student competition and a poster session. For more information contact: Wilbur Amand, VMD, AAZV Executive Director, Philadelphia Zoo, 3400 W. Girard Ave., Philadelphia, PA 19104-1196; phone (215) 387-9094; FAX (215) 387-2165.

Association of Reptilian and Amphibian Veterinarians (ARAV)

October 22-23, 1994

Pittsburgh, PA

To be held in conjunction with the AAZV Conference listed above. This is the first conference for the ARAV and will include a general lecture session, a case report session and workshops on (1) basic reptile and amphibian medicine; (2) advanced reptile and amphibian medicine; and (3) pathology/necropsy techniques. For further information and registration materials contact Wilbur Amand at address given under AAZV listing.

Third Annual National Watchable Wildlife Conference

October 26-29, 1994

Burlington, VA

Theme is "Take A Closer Look". Conference will include workshops, panel discussions and hands-on interactive sessions. Field trips for Vermont wildlife viewing included. For further information contact Hannah Kirchner or David Case at National Watchable Wildlife Conference, 607 Lincolnway West, Mishawaka, IN 46544 Tel: (219) 258-0100.

The Exploitation of Mammals

November 25-26, 1994

London, England

A symposium organized by The Mammal Society and Universities Federation for Animal Welfare. The major theme concerns the various ways in which mammal populations are exploited world-wide, the concept of sustainable use and the resulting welfare considerations for animals involved. Program includes sessions on Mammal Game Ranching, Mammal-oriented Ecotourism; Mammals in Zoos and Circuses; Sport Hunting of Mammals; and Mammal Wildlife Trade and Conservation. For further information contact Victoria Taylor at UFAW, 8 Hamilton Close, South Mimms, Potters Bar, Herts, England EN6 3QD.

10th International Conference on Bear Research & Management

July 16-20, 1995

Fairbanks, AK

Sept. 11-14, 1995

Mora, Sweden

Theme is "Bears - Their Biology and Management." For both sessions, persons desiring to present papers must submit summaries of their proposed presentations. Summaries are due by 30 September 1994 for Fairbanks and by 30 October 1994 for Swedish-Norwegian sessions. For further information contact: Fairbanks - Harry Reynolds, 1300 College Rd., Fairbanks, AK 99701-1599, tel: (907) 452-1531, FAX: 907/452-6410; Sweden - Anders Bjärvall, Naturvårdsverket, S-171 85 Solna, Sweden, tel: Int. code + 46 8 799 10 00, Telfax: Int. code + 46 8 799 14 02.



Two Handraised Big Brown Bats Available for Education

Anyone interested in obtaining two handraised Big brown bats (*Eptesicus fuscus*) for education programs, contact Sue Barnard, Zoo Atlanta, Dept. of Herpetology, 800 Cherokee Ave., S.E., Atlanta, GA 30315, or telephone (404) 624-5618...first come, first serve basis!

The project that just won't die....

The Exhibit Design Resource Notebook

*submitted by Michael Demlong, EDRN Coordinator
The Phoenix Zoo, Phoenix, AZ*

Like the mythical Phoenix bird, once again the Exhibit Design Resource Notebook (EDRN) has risen from the ashes! For one reason or another this project has never quite gotten off the ground - mostly due to a lack of participation by AAZK members. Fortunately our Board of Directors, and EDRN Committee members David Morrow (Wichita, KS), Mary Wykstra-Ross (Salt Lake City, UT) , and I believe the project has merit and we are making one last effort to see it to publication.

Many AAZK members will probably remember this project, others may not so I'll briefly review the project's objectives. The purpose of the EDRN is to document existing animal exhibits at zoos and aquaria in North America and other continents. To do this we have produced a comprehensive survey form, to compile exhibit information on all species of animals: invertebrates, fish, mammals, birds, herps, and amphibians. The finished EDRN is intended to serve as a reference to facilitate the creation or improvement of zoo animal exhibits. We hope the notebook will provide useful exhibit design and maintenance information about specific animal species, to compliment, not substitute for a comprehensive research format.

To gather this information, we have developed a relatively painless survey form for caregivers to complete. With the participation of yourself and other keepers, we will consolidate the returned surveys into a notebook chocked full of information on many types of animal exhibits. the EDRN is intended to be a starting point for keepers, design staff, and architects preparing to build or remodel an exhibit.

We invite you and your co-workers to be an altruist, and take the time to complete one or more EDRN forms. If you call or write me, I'll be glad to send you however many free forms you need. Besides needing completed survey forms, we also need financial support to cover copy services, stamps, and postcards to promote the EDRN project. If your zoo or local AAZK Chapter might be interested in helping to fund this project please let me know.

Thank you in anticipation for your support.

Mike Demlong
Design Department
The Phoenix Zoo
455 North Galvin Parkway
Phoenix, AZ 85008-3431
(602) 273-1341 Office Ext. 7326



Information Please

Riverview Park and Zoo is about to plant some new trees in their animal exhibits. If anyone has any good suggestions about what species would do well and how we could protect them, we would sure like to hear from you. The enclosures that we are anticipating planting are for Camels, Barbary sheep, Llamas, Yak, Cougar, Serval, Reindeer, Siks deer, Arctic fox, Wallaby, Emu and Arctic wolf. If you have any suggestions or know of any good books that would help us out, we would sure appreciate your help. Thanks a lot! We can be phoned at (705) 748-9300 Ext. 303; Faxed at 705-745-6866 (Fax on 24 hours) or you may send information to: Wally Davidson, Riverview Park and Zoo, P.O. Box 4125, Peterborough, Ontario, K9J 6Z5, Canada.



Notice to the Membership on Board of Director Vacancy

from Janet McCoy

AAZK President

It is with regret that I report that Board Members Ellen Bradfield (Zoo Atlanta) and Ed Hansen (Reid Park Zoo) have resigned from the Board of Directors. Ellen's was due to time limitations and Ed's to a new appointment by the Board. These resignations became effective at the mid-year Board meeting held in Topeka May 15-16, 1994. We appreciate Ellen's two and one half years of service and Ed's five years of service that they dedicated to the Board and to their respective oversights.

Article 2, Section 3 of the By-laws states that "A vacancy in any Directorship, except that of President, shall be filled by appointment by the Board of Directors. Persons filling such vacancies must meet all qualifications that would be necessary for the election by the membership. Appointees shall serve only until the next regular election, but may stand as candidates for regular terms."

The Board, in compliance with the By-laws, will accept letters of interest and resumés from individuals who are interested in accepting the responsibilities of a Directorship. The Board will accept such letters until **15 August 1994**. Interested individuals should send their information to: Janet McCoy, AAZK President, Metro Washington Park Zoo, 4001 S.W. Canyon Road, Portland, OR 97221. From interested applicants the Board will appoint replacements to fulfill Ellen's and Ed's unexpired terms until the 1995 National Conference when the newly elected Board Members from the 1995 Board election will take office. Following is an overview of the duties of a Board Member and the necessary qualifications for those wishing to be considered.

Duties of the Board of Directors

For a more detailed explanation of the expanded duties of the Board, refer to the By-laws (available upon request from Administrative Offices in Topeka, KS).

- 1) Select, appoint or remove officers, committees, agents and employees of the Association, including prescribing powers and duties for same.
- 2) To control and manage the Association and its property, passing upon acquisition and disbursements with approval of a majority of the Board.
- 3) To formulate policies, rules and regulations in accord with the Constitution & By-laws.
- 4) To uphold the Constitution of AAZK and the policies of the Association.
- 5) To appear at Board meetings, to accept Board assignments and to devote the time to communications pertinent to all Board business, including answering correspondence promptly and efficiently.

Qualifications for Selection

- 1) Appointee must be a Professional Member of AAZK, Inc. in good standing and must have been a member of the Association for at least one year.
- 2) Appointee must be presently employed as an animal keeper/attendant, veterinary technician, research technician or other personnel directly connected with the care, feeding, and educational display of captive wildlife in a recognized zoological park, aquarium, animal reserve or other animal care facility.



Message From the President.....

For several years, the Board of Directors have discussed the possibility of establishing an Executive Director position, not only to provide continuity within the Association, but to work in the area of development, both monetarily and programmatically. Along with maintaining the period of growth we have been experiencing and the tracking of regulations concerning our 501(c)(3) status, the Board felt it was time to initiate the Executive Director position under Article VIII, Section 2 of the By-laws.

Because of Ed Hansen's outstanding service to this Association, a thorough knowledge of the workings of AAZK, and his ability to develop ideas and programs, the Board unanimously appointed Mr. Hansen to temporarily fulfill the position of AAZK Executive Director.

The Board of Directors is announcing the establishment of the position of Executive Director to be ratified at the Omaha Conference by the membership.

Janet McCoy,
AAZK President



Notice to the Membership of Executive Director Position Opening

This is a part-time position, requiring 20-30 hours of work per month. Position requires two years of administrative experience. A degree in Business or Public Administration is preferred, but not required. Applicant should have previous experience working with a Board of Directors and/or membership in an Association/Organization type framework. Must have thorough knowledge of Internal Revenue Tax laws and regulations and their application to a tax exempt entity. In addition to supervising two employees, the applicant will assist the Board of Directors in performing the priority job duties listed below. Salary commensurate with experience, not to exceed \$3500.00 per year, plus approved expenses. The Board of Directors will accept letters of interest and resumés until 15 September 1994. Personal interviews for the position of Executive Director will be held Sunday, 9 October 1994, during the National Conference in Omaha, NE.

Please send resumés and cover letters of interest to:

AAZK, Inc.
635 S.W. Gage Blvd.
Topeka, KS 66606-2066

Executive Director priority assignments and job duties include the following:

- Creation and publication of AAZK Inc.'s Operation Manual
- Facilitate the operation of the Administrative Offices of the Association.
- Handles the correspondence on behalf of the Board that relates to administrative and non-policy matters. Refer policy matters to the Board.
- Work with the Board to develop short and long-term goals for the Association and its membership.
- Advise the Board on administrative matters, publications, facility and staff matters.
- Provide an avenue for constant and continuous communication between the Board, staff and membership.
- Continue the productive relationships established with AZA and sister associations.
- Handle requests to the Association received from outside entities for funds, programs and/or services.
- Upgrade staff quarters and equipment.
- Continue to pursue development goals in a more aggressive style.
- Attendance at the National and Midyear meetings.
- Act as Coordinator for Annual Conferences

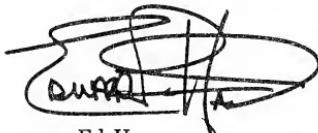
From the Acting Executive Director

During the 1990's the American Association of Zoo Keepers, Inc. has undergone a period of very strong growth. Membership and finances continue to improve. AAZK, Inc. is recognized worldwide for contributions to successful conservation programs. This evolutionary period, coupled with the complexity of regulations governing tax-exempt, non-profit corporations, has led your Board of Directors to establish the position of Executive Director. I am very proud and honored to have been temporarily appointed to this position by the Board of Directors.

Because this position was established under Section VIII, Section 2 (Emergency Legislation) of the AAZK Bylaws, it will remain temporary until ratified by the membership during the Omaha Conference. This position carries a nominal salary, and a complete outline of the position will be published for membership comment. In addition to working with the complex laws detailed above as they apply to our membership, the principle duties of the Executive Director will be to coordinate the staff of the Administrative Offices, working on improving the programs and publications that we offer to the membership. The Executive Director will also work in the area of development, infusing new funds and instituting additional programs on behalf of the membership.

I have been a member of this Association since 1980, serving on numerous committees. I have served on the Board of Directors since 1989 and recently completed a two-year term as your President. In order to accept this temporary appointment, I have resigned my position on the Board of Directors. I feel confident in my abilities to lend assistance to the Board in leading the membership on a progressive road to the future.

To effectively coordinate programs and to organize the many facets of AAZK, Inc., I will need input from the membership. If you wish to offer suggestions or comment on the establishment of the Executive Director position, please contact me through the Administrative Offices of your Association. I look forward to a productive relationship with the membership.

A handwritten signature in black ink, appearing to read "Ed Hansen". The signature is fluid and cursive, with some loops and variations in line thickness.

Ed Hansen
Acting Executive Director AAZK, Inc.

Information Please

The Lee Richardson Zoo is currently exhibiting 1.2 Emu. The male has always been a little aggressive towards keepers and we had hoped that as he made it through his first breeding season this attitude would change. It hasn't and if anything, has probably gotten worse. They are exhibited in a five-acre grass yard, currently by themselves. In my experience in dealing with Emu, I have not come across a male that was this aggressive. Any help or advice you may have would be greatly appreciated. Please send information to: Jeff Bullock, Lee Richardson Zoo, P.O. Box 499, Garden City, KS 67846.

Mid-Year AAZK Board of Director Minutes - 16-17 May 1994

In attendance: Janet McCoy, Rachél Rogers, Ed Hansen, Mark de Denus, Alan Baker, and Ric Urban

Absent: Ellen Bradfield

Staff: Susan Chan and Barbara Manspeaker

The meeting was called to order by the President at 9:15 a.m.. Reading of the minutes from the annual meeting was dispensed. Old business was waived, to be discussed later in the agenda. The resignation of Ellen Bradfield, Zoo Atlanta, was accepted by the Board and entered into the record.

The intention to create a paid position entitled Executive Director was proposed by Rogers, under the auspices of Article VI, Section 1d of the adopted and ratified Association By-laws. Specific duties were discussed and will be assigned by the BOD. Staff offered their opinions on the need for a consistent management style to help the Association deal with a transitional BOD. Additional discussion regarding the position and duties progressed until 10:35 a.m.

Proposal #14: To create the position of Executive Director of AAZK, Inc., and appoint Ed Hansen to the position for a five-month probationary period until ratification by the membership. So moved by Rogers, seconded by de Denus. Approved 5-0 (Hansen abstained).

BOD accepted the verbal resignation of Hansen from the AAZK Board of Directors effective immediately.

Bylaws: Chair Vacant - One committee member dropped from the Association membership roles. Advertisement for two replacements to this committee will be made at first opportunity. Baker appointed to fill position vacated by Hansen. Text in the Bylaws will be changed to reflect new title of the Operations Manual.

Ethics: Chair: Rachél Watkins Rogers (Appointed)

BOD Representative: Mark de Denus (Appointed)

Committee had no reason to convene during 1992/93 term. New members selected and ratified.

Nominations and Elections Committee: Chair Vacant (position has been advertised) BOD discussed and approved the printing and mailing of two nominator/nominee forms in the AKF instead of four. One direct mailing will be substituted for Chapters through Regional Coordinators. Priority duties of the NEC Committee will be to concentrate on the organizational process needed to name the Executive committee that will elect the President and Vice President of the Association in 1995.

Development: Duties of this Committee transferred to the auspices of the new Executive Director. **Proposal #15,** Dissolution of this Committee so moved by Rogers, seconded by de Denus. Approved 5-0.

AZA Liaison: Ed Hansen - Duties will remain with Hansen. AZA confirms through D. Merritt, AZA President, acceptance of the Immediate Past President in this role.

Public Education Committee: Chair: Elaine Puzo - Due to the inactivity of this Committee, failure to respond to correspondence, and the general concept that zoo keepers, while they may be the front line zoo educators, this is not their intended profession, the BOD voted unanimously to dissolve this Committee. **Proposal #16,** so moved by Rogers, seconded by Baker (approved 5-0). The BOD will continue to liaison with the AZA PEC Committee and petition their PEC Chair for a replacement liaison (Bradfield).

Zoo University List: Chair: Mike Illig - Chair and AO report many requests for this list. AZA continues to provide the list upon inquiry. No requests to the BOD, no action.

AAZK BOD Mid-year Meeting Minutes, Continued

Staff Exchange: Chair: Dale Frerking - Report submitted and Access List is building. No requests to the BOD, no action.

Animal Data Transfer Form: Chair: Bernie Feldman - Report submitted, including finances. No requests to the BOD, no action. BOD requests the Chair investigate stronger mailing containers to prevent damage to bulk mailings.

Historian: Chair: Heidi Fowle - Report submitted. Chair received materials from four chapters and have made informal contact with two others. Contact has been established with AZA Historian (V. Kisling). Bowling for Rhinos materials are needed to document this program and Chair is instructed to contact P. Pearthree, BFR Coordinator. The photo album will be rejuvenated, as will the conference photo album.

Publications Funding Committee: Chair: David Luce - Report received. Direction of this Committee will be moved to the auspices of the Executive Director. Final materials for publication will be reviewed by staff and submitted to the BOD for approval.

Awards: Chair: Janet McCoy - Full report submitted. C. Janik resigned her position on this committee. Chair requests Anna Michel, Washington Park Zoo, be appointed to the Committee and act as interim chair until Jan can reassume duties upon completion of her Presidential term. Approved by BOD 5-0. The BOD also approved changes to the wording on the Certificate of Recognition and the Certificate of Appreciation.

Proposals from the Board were accepted into the agenda and discussed.

Mark de Denus proposed the adoption of Standards of Communication for the BOD. These standards outline in detail the minimum communication needs for the BOD to effectively manage the membership. Adopted 5-0.

The statement of Purpose for the Association was reviewed for appropriate content and expanded to include more conservation oriented issues. Proposals #4, 5, and 6 regarding the review of the Statement, the expansion of the Purpose and the adoption of the new Statement were so moved by de Denus, seconded by Rogers, approved 5-0.

The BOD directed that this statement be available to the membership through the Operations Manual. (Printing anticipated in Fall '94).

The need for the Administrative Office to document contributions to fellow 501(c)(3) organizations in the amount of \$250.00 and above was discussed. The Executive Director will communicate with these organizations to ensure the proper paper work is in place.

Additional vacation leave for staff was discussed. Staff is currently averaging 35 hours per week in job time, but they are being compensated for a 25-hour work week in vacation time. The Executive Director was asked to review this situation and report to the BOD. In addition, salary structure is to be reviewed, job descriptions updated and employee contracts reviewed and signed.

Conservation, Preservation and Restoration Committee: Chair: Brett Sellers
No report submitted. BOD requested a formal letter from the President to the Chair requesting the status of the project and a report.

Conferences: Sites: 1994 - Omaha 1995 - Denver 1996 - Detroit

Proposal #17 moves the responsibility of conference coordination to the Executive Director. So moved by de Denus, seconded Rogers. Approved 5-0.

BOD expressed concern over the resources available for Chapters that detail the "how to" specifics of hosting a conference. The Executive Director will implement a better communication process with Conference hosts and potential conference sites.

AAZK BOD Mid-year Meeting Minutes, Continued

Research Grants: Chair: Susan Barnard - Two proposals (#11, 12) were submitted to the BOD for consideration. Proposal #11 dealt with setting a 1 March deadline for the grant applications, stating that each application must be typed and that they be mailed to the grants coordinator. So moved by de Denus, seconded by Rogers, Approved 5-0.

Proposal #12 asked that a technical committee be set up to review each grant application. The BOD feels that they currently and informally offer each grant to selected reviewers for comment. Should future applications become more technical, the Board can then review the request again. The Research Grants committee was established to promote field research among keepers and the BOD expressed concern that a technical review process goes beyond the scope of the original intent. Proposal #12 so moved by de Denus, seconded by Rogers. Disapproved 0-5.

Publications: Diet Notebook, Zoo Infant Development, Exhibit Design Resource Notebook

Diet Notebook - Re-establish a time line with coordinator.

ZIDP - anticipates a July 1994 publication

EDRN - Work progressively with new coordinator

Proposal #19 moved for the requirement that all AAZK publications be reviewed by an independent third party, so moved by de Denus, died for lack of a second.

Adjourn

16 May 1994 - Meeting called to order by President Jan McCoy at 9:30 a.m.

Library Resources: Chair: Marilyn Cole - Chair inquires to the BOD whether this Committee has become antiquated, or whether it has become overshadowed by zoo libraries and professional bibliography search services. Proposal #18 follows the suggestion by the Chair and is so moved by Baker to dissolve this committee, seconded by Rogers. Approved 5-0.

Training Materials: Chair: Christina Simmons - Synopsis of outline presented similar to materials presented in Atlanta. No requests to the BOD, no action.

USDA Inspection Standards: Chair: Rachél Watkins Rogers - Proposed name change to Inspection Standards Committee, approved 5-0. Complete report submitted. First draft to the BOD by mid-year 1995, publication anticipated by Conference time 1995.

L.I.N.K.: Chair: Mark de Denus - Full report submitted. Chair expressed a concern over Chapters lack of concern with their responsibilities to each Secretary of State and also with lack of cooperation exhibited by these Secretaries. Executive Director, in conjunction with the Chair, shall draft a letter to each Chapter detailing their responsibilities, for file. This will serve to fulfill legal obligations from the Association.

Chair asked for a late fee to be established for Chapters failing to recharter by the deadline. Proposal #1 so moved by de Denus and seconded by Rogers, approved 5-0, will establish a \$25.00 late fee.

Chair requests that Chapter mailing list shall not be made available to anyone without prior approval of the BOD. Proposal #3 so moved by de Denus and seconded by Rogers, approved 5-0, will establish this policy.

Staff requests that upon BOD approval, the Chapter mailing list be made available to commercial solicitors for a \$25.00 fee. Proposal #19 so moved by Rogers and seconded by de Denus, approved 5-0, will establish this policy.

International Affairs Committee: Chairs: Lois Johannes and Lisa Scheifele - Oversight reports that each Chair would prefer separate areas of accountability to the oversight, approved by informal vote of the BOD. Foreign Keeper Sponsorship reports the availability

AAZK BOD Mid-year Meeting Minutes, Continued

of keepers to translate correspondence into a variety of native languages. Committee is asked to publish the availability of this service and offer it to Staff Exchange and Research Grants.

Keeper Accommodation List: Chair: Todd Cleveland - New, updated list available. No requests to BOD, no action.

Administrative Offices

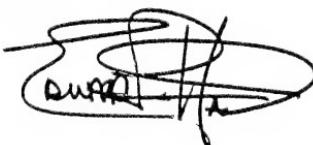
Approval to buy new 4-drawer file cabinet

Approval to investigate a computer upgrade with the advice of a consultant.

New Federal regulations regarding the placement of advertising in 501(c)(3)/nonprofit bulk permit journals. This will be investigated by staff and Executive Director.

The BOD approved the establishment of an Enrichment Committee to facilitate the compiling of enrichment ideas and serve as clearing house for the membership who solicit ideas. Approved 5-0.

Meeting adjourned, To be convened in Omaha on 8 October 1994.



Respectfully submitted,
Ed Hansen, Immediate Past President



AAZK Announces New Professional/Contributing Members

Laurie Sullivan, Franklin Park Zoo (MA)

Jason Lauer, The Zoo (FL)

Cindy Lamneck, Columbus Zoo (OH)

Michelle Loney, Ft. Wayne Children's Zoo (IN)

Tracy Jackson, Ralph Mitchell Zoo (KS)

Laura Kelly, Phoenix Zoo (AZ)

Tom Mintun, Marine World Africa USA (CA)

Jacquie Randall, Assiniboine Prk Zoo (MB)

Lisa Eidlin, Queen's Wildlife Center (NY)

James F. Boone III, Jackson Zoo (MS)

Scott Kubisch, Lincoln Park Zoo (IL)

Jennifer Warmbold, Lincoln Park Zoo (IL)

Elizabeth Linkous, Little Rock Zoo (AR)

George Hilpmann, San Diego Zoo (CA)

Cynthia Michael, Wildlife Safari (OR)

Shelley Dykes, Assiniboine Prk Zoo (MB)

New Contributing Members

Terry Lincoln, Director, Dakota Zoo, Bismarck, ND

Renewing Contributing Members

Dr. Gerrie Barr, Director, Zoo World, Panama City Beach, FL

Melissa Aquilar, Director, California Living Museum, Bakersfield, CA

Kent K. Fellows, Docent, Seneca Park Zoo, Rochester, NY

Kathy De Falso, Volunteer, San Diego Zoo, San Diego, CA

Andy Lodge, Ngare Sergoi Support Group, Inc., Columbus, OH



Births & Hatchings



Philadelphia Zoo (Philadelphia, PA)...announces the following significant B&H from January through May 1994:

Mammals - 2.0 Six-banded armadillo (*Euphractus sexcinctus*) [1.0 DNS traumatized by mother, the other was successfully hand-reared]; 0.0.2 Bicolored tamarin (*Saguinus b. bicolor*) [E, CITES I] [1st captive birth in North America]; 0.0.3 Rodrigues fruit bat (*Pteropus rodricensis*) [E, CITES II]; 0.0.1 Egyptian fruit bat (*Rousettus aegyptiacus*); 0.4 African lion (*Panthera leo krugeri*) [CITES II] [0.3 born to one dam with 0.1 DNS due to brain and heart abnormalities, the remaining cubs and the 0.1 born to the other dam were all pulled for hand-rearing due to maternal neglect]; 1.1 Lesser slow loris (*Nycticebus pygmaeus*) [T, CITES II] [DNS - dam was not properly lactating]; 0.1 Mongoose lemur (*Lemur m. mongoz*) [E, CITES I]; 0.0.4 Greater Madagascan hedgehog tenrec (*Setifer settosus*) [0.0.1 DNS - probably cannibalized by dam].

Birds - 0.0.1 Superb fruit dove (*Ptilinopus s. superbus*); 0.0.2 Humboldt penguin (*Spheniscus humboldti*) [CITES I] [0.0.1 DNS]; 0.0.2 Magpie tanager (*Cissopis leveriana*) [0.0.1 DNS]; 0.0.1 Red-rumped green woodpecker (*Picus erythropyggius*).

Reptiles - 0.0.7 Central American river turtle (*Dermatemys mawii*) [e, CITES II] [1st captive birth, 1.2 adults were brought in from USFWS and the female was gravid at that time, laying several clutches which were artificially incubated and successfully hatched]; 0.0.2 Prehensile-tailed skink (*Corucia zebrata*) [CITES II] [DNS - due to yolk toxicity; 0.0.7 Eyelash viper (*Bothrops schlegeli*) [CITES III] [0.0.3 DNS]; 0.0.2 Solomon Island ground skink (*Sugongylus albofaciolatus*). submitted by Teri Maas, Philadelphia Zoo.

Denver Zoo (Denver, CO)...announces the following B&H for January through April 1994:

Mammals - 0.1 Grevy's zebra (*Equus grevyi*) [CITES I, E/SSP]; 1.0 Roan antelope (*Hippotragus equinus*) [CITES III]; 0.0.1 Ring-tailed lemur (*Lemur catta*) [CITES I, E]; 0.0.1 Serval (*Felis serval*) [CITES II]; 0.0.1 Pale-headed saki (*Pithecia pithecia*) [CITES II]; 0.0.1 Emperor tamarin (*Saguinus imperator subgriseus*) [DNS, CITES II]; 0.0.1 Cotton-headed tamarin (*Saguinus oedipus*) [DNS, CITES I/E]; 0.0.2 Colobus monkey (*Colobus guereza kikuyuensis*) [0.0.1 DNS, CITES II].

Birds - 0.0.5 East African crowned crane (*Balearica regulorum gibbericeps*) [CITES II]; 0.0.4 Bartlett's bleeding heart dove (*Gallicolumba criniger*) [CITES II] [0.0.3 DNS]; 0.0.2 Galah (*Eolophus roseicapillus*) [0.0.1 DNS] [CITES II]; 0.0.6 Roul-roul (*Rollulus roulroul*) [0.0.2 DNS] [CITES III]. submitted by Vickie Kunter, Chapter Liaison, Rocky Mtn. Chapter, Denver Zoo.

Little Rock Zoo (Little Rock, AR)...The Little Rock Zoo is pleased to announce the birth of twin Chimpanzees (*Pan troglodytes*) on 7 May 1994. This event is notable for several reasons. First, multiple births in Chimpanzees are fairly unusual, especially in recent years. Second, the mother is wild-caught and had no surviving offspring, and last, this birth represents the culmination of six years' efforts to produce a viable offspring. Our intentions are to produce a lengthier article at a later date detailing events leading to this birth. We would like to include in this announcement some of the circumstances surrounding the event.

Births & Hatchings, Continued

Judy, the mother, had been housed alone for some years prior to coming to Little Rock. A decision was made to send her to us when our new exhibit opened in 1988. Judy's social experiences were minimal and she exhibited a variety of undesirable behaviors upon arrival here.

Keepers, supported by management, made concerted efforts to help Judy adjust and be integrated into our group of Chimps, and eventually she became pregnant. The loss of her first infant to insufficient lactation was a blow to everyone involved. We decided to attempt to train Judy to allow us to supplementally feed her next baby. One of the keepers attended the Primate Training and Enrichment Workshop in Bastrop, TX, and acquired the skills to accomplish this, as well as share these skills with other staff. The next infant born was removed for unrelated reasons; it subsequently developed medical problems and did not survive. Judy did, however, allow the keepers to examine the infant while it was still with her.

We continued our training, and although we anticipated this birth, twins were a complete surprise! Judy demonstrated adequate maternal skills, and allowed us to begin bottle feeding the twins when they were a day old. We were also able to examine and sex the infants the day they were born. By Day 3 it was obvious the twins were very hungry and Judy was becoming exhausted. This, combined with the historically poor survival rate of twins, prompted the decision to remove them for hand-rearing.

Once again, the training paid off, and we were able to hand-inject Judy with enough Ketamine® to allow us to pull the twins with a minimum of trauma. 1.0 Koba and 0.1 Mahale currently reside in the nursery. They are healthy and doing well. We hope to reintroduce them to our Chimps as soon as is feasible. *submitted by Ann Rademacher, Great Ape Keeper, Little Rock Zoo*



Proposed By-Law Amendment - Executive Director

Article VI, Section 1d. Executive Director

The Board of Directors may appoint and employ an Executive Director who shall serve at its discretion under special supervision of the President and Board of Directors, he/she shall be responsible for the day-to-day operation of the Association, providing material to committees, advisors, chapters and agents and for promoting and conducting the programs of the Association within the policy guidelines of the Board of Directors in accordance with the Charter and By-laws.

The Executive Director shall have the authority to employ personnel for the Association as provided for by the Board of Directors or its Officers and to terminate the employment of such personnel. He/she shall have full authority, as well as responsibility, to supervise the work of such personnel. He/she shall attend all meetings of the Board of Directors and its Officers, but shall not be entitled to vote. He/she may attend all meetings of By-laws, Standing, and Special Committees in an *ex officio* capacity without the right to vote.

The Executive Director shall be bonded in an amount set forth by the Officers, and the Association shall pay the cost of such bond.

L.I.N.K.
(Liaison and Information Network for Keepers)

Coordinator for the LINK System: Mark de Denus, Assiniboine Park Zoo, 2355 Corydon Ave., Winnipeg, Manitoba, Canada R3P 0R5. (204) 986-6921 [w]; (204) 837-2916 [h]

Regional Coordinators

ALABAMA - Fred Alvey, Zoo Atlanta, 800 Cherokee Ave. S.E., Atlanta, GA 30315

ALASKA - Vacancy

ARIZONA - Vacancy

ARKANSAS - Debbie Jackson or Ann Rademacher, Little Rock Zoological Gardens,
#1 Jonesboro Dr., Little Rock, AR 72205

CALIFORNIA (Northern) - Jean Lai, Oakland Zoo, 9777 Golf Links Rd., Oakland, CA 94605 and
Ruby Lara, Sacramento Zoo, 3930 West Land Park Dr., Sacramento, CA 95822-1123

CALIFORNIA (Southern) - Mr. Kay Munsey, EFBC, HCR 1, Box 84, Rosamond, CA 93560

COLORADO - Vacancy

CONNECTICUT - Jeanette Nadeau, Roger Williams Park Zoo, Providence, RI 02905

DELEWARE - Theresa Maas, Philadelphia Zoo, 34th & Girard Ave., Philadelphia, PA 19104

FLORIDA - Rick Smith, 5752 Stoneridge, Orlando, FL 32839

GEORGIA - Fred Alvey, Zoo Atlanta, 800 Cherokee Ave. S.E., Atlanta, GA 30315

HAWAII - Vacancy

IDAHO - Holly Liappas, Tautphaus Park Zoo, P.O. Box 50220, Idaho Falls, ID 83405

ILLINOIS - Pat Swieca, 5710 W. Cullom Ave., Chicago, IL 60634

INDIANA - Vacancy

IOWA - Carla Wieser, Omaha's Henry Doorly Zoo, 10th St. & Deer Park Blvd., Omaha, NE 68107

KANSAS - Vacancy

KENTUCKY - Scott Wright, Cleveland Metroparks Zoo, 3900 Brookside Park Dr., Cleveland, OH 44109

LOUISIANA - Rhonda Votino, 3535 Houma Blvd., Apt. 109, Metairie, LA 70006

MAINE - Jeanette Nadeau (see addresses under CT)

MARYLAND - Theresa Maas, Philadelphia Zoo, 34th & Girard Ave., Philadelphia, PA

MASSACHUSETTS - Jeanette Nadeau (see addresses under CT)

MICHIGAN - Tim Sampson, John Ball Zoo, 1300 W. Fulton, Grand Rapids, MI 49504

MINNESOTA - Tim Hill, Minnesota Zoological Gardens, 13000 Zoo Blvd., Apple Valley, MN 55124

MISSISSIPPI - Jeannie Frazier, Jackson Zoological Park, 2918 W. Capitol, Jackson, MS 39209

MISSOURI - Vacancy

MONTANA - Holly Liappas (see address under Idaho)

NEBRASKA - Carla Wieser (see address under Iowa)

NEVADA - Patricia Simonet, Wildlife Safaris, P.O. Box 6735, Incline Village, NV 89450

NEW HAMPSHIRE - Jeanette Nadeau (see addresses under CT)

NEW JERSEY - Frank Leonard, Bronx Zoo, 185th & Southern Blvd., Bronx, NY 10460

NEW MEXICO - Bruce Eneboe, Reid Park Zoo, 1100 S. RandolphWay, Tucson, AZ 857716

EAST NEW YORK - Frank Leonard, Bronx Zoo, 185th & Southern Blvd., Bronx, NY 10460

WEST NEW YORK - Alan Baker, Burnet Park Zoo, 500 Burnet Park Dr., Syracuse, NY 13204

NORTH CAROLINA - Lucy Segerson, North Carolina Zoo, Rt. 4, Box 83, Asheboro, NC 27203

NORTH DAKOTA - Bob Debets, Assiniboine Park Zoo, 2355 Corydon Ave., Winnipeg, Manitoba

Canada R3P 0R5 (204) 986-6921 [w]

OHIO - Scott Wright, Cleveland Metroparks Zoo, 3900 Brookside Park Dr., Cleveland, OH 44109

OKLAHOMA - Debbie Jackson or Ann Rademacher (see addresses under AR)

OREGON - Anna Michel, Washington Park Zoo, 4001 SW Canyon Rd., Portland, OR 97221

PENNSYLVANIA - Theresa Maas, Philadelphia Zoo, 3400 W. Girard, Philadelphia, PA 19104

RHODE ISLAND - Jeanette Nadeau (see addresses under CT)

SOUTH CAROLINA - Lucy Segerson, North Carolina Zoo, Rt. 4, Box 83, Asheboro, NC 27203

SOUTH DAKOTA - Bob Debets (see address under ND)

TENNESSEE - Gail Karr or Cindy Pinger, Memphis Zoo & Aquarium, 2000 Galloway, Memphis, TN 38112

TEXAS - Ann Marie Greco, 5903 Danny Kaye #2104, San Antonio, TX 78240

UTAH - Vacancy

VERMONT - Jeanette Nadeau (see addresses under CT)

VIRGINIA - Theresa Maas, Philadelphia Zoo, 34th & Girard , Philadelphia, PA 19104

WASHINGTON - Vacancy

WEST VIRGINIA - Theresa Maas, Philadelphia Zoo, 34th & Girard , Philadelphia, PA 19104

WISCONSIN -Wayne Hazlett, 3768 S. 89th St., Milwaukee, WI 53228

WYOMING - Holly Liappas (see address under Idaho)

DISTRICT OF COLUMBIA - Theresa Maas (see address under PA)

Province of Ontario - Vacancy

Provinces of Manitoba & Saskatchewan - Bob Debets (see address under ND)

Province of Quebec - Vacancy

Provinces of Alberta & British Columbia - Grant Tkachuk, 10139 157th St., #206, Edmonton, Alberta

Atlantic Canada - Bernard Gallant, RR # 7, 1081 Ryan Road, Moncton, N.B., E1C 8Z4 T5P 2T9



Letters to the Editor

Dear Ms. Chan,

I thought I would write to your letter column and tell you about a remarkable recent visit I

had at the Nashville Zoo. My attention was drawn to a crowd watching a camel lying on the ground unconscious. Apparently the camel had gotten either its neck or a collar (the animal provided children with camel rides) caught in a fence cutting off its airway. A keeper rushed to its pen and immediately attempted mouth-to-nose resuscitation. The camel was bleeding from its nose but the keeper was undaunted. While he breathed furiously, a colleague initiated chest compressions.

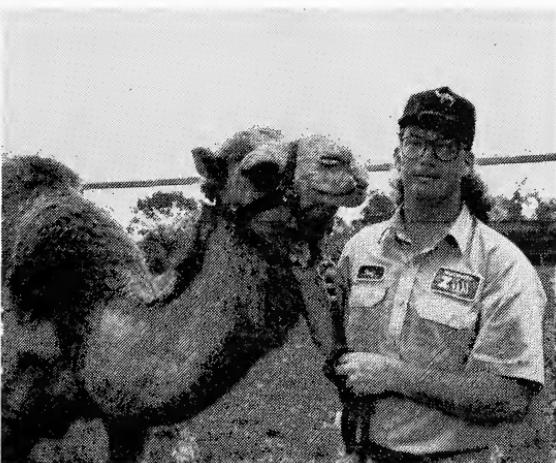
As you can imagine chest compressions on an adult camel are quite a sight and feat. Together these two keepers or vets brought this camel back to life. The crowd, awed by what it had witnessed, stood and clapped. We, strangers to each other, were all joined in rooting for the camel. The first keeper arose, his face looking like he was splashed with tomato juice, then gingerly and affectionately clasped the head of the camel to comfort the scared animal. The five or six keepers in the pen allowed the camel's companion in the area to nervously pace around during the resuscitation. Sensing that something was wrong, this camel licked the face of the injured animal.

The scene was very moving and revealing of the care and affection these professionals have for their animals. While I was not able to stay long enough to find out if the camel made a complete recovery (perhaps someone from the zoo can give an update), I left admiring the staff of the Nashville Zoo. This occurrence only underscores the importance of CPR training because you never know when you might have to use it whether for visitors or residents (do I sound like a commercial for CPR education?). I want the Nashville staff to know of my appreciation of their life saving skills.

Sincerely,

Patti O'Kane, R.N.
Brooklyn, NY

Editor's Note: through correspondence with the Nashville Zoo, we have been able to fill in a few more details on this remarkable incident. The keeper involved, Doug Baum, has been at the zoo since November 1992 and has worked with 2.2 Dromedary camels since the Spring of 1993. The camel involved was a 2-year-old juvenile male named Ted who is kept with another young male, Bill. According to Doug both animals had halters on and had worn halters since August of 1993 with no problems



Keeper Doug Baum and 1.0 Dromedary Camel "Ted"

On the day in question, Ted apparently got the buckle of his halter hung up on the chain link of the off-exhibit pen in which he was housed with Bill. The harder he pulled to free himself, the tighter the strap under his throat became. A G.I. from nearby Ft. Campbell, KY saw Ted struggling and alerted Doug and his assistant, Brian Askins, to the situation. Doug and Brian had been giving camel rides with Belle and Tina, the two female adult Dromedary

Letters to the Editor, Continued

camels. They rushed to the pen and found Ted already unconscious. Doug's pocket knife wouldn't cut the halter so a knife borrowed from the G.I. was used. Doug and Brian pulled Ted away from the fence and immediately began breaths and chest compressions (Doug on Ted's muzzle; Brian on the chest). After two or three CPR sequences, Ted began exhaling blood and coughing up blood and spittle. After the animal regained consciousness, the two keepers got him into a sternal position and wiped off his face. Ted did drink a few swallows of water following the incident.

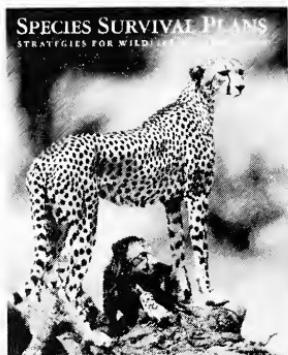
While Brian and another employee resumed the camel rides, Doug baby-sat Ted until nearly 7:00 p.m. (almost 6 1/2 hours after the accident). By this time he had gotten up, walked around and eaten a little bit of grass Doug offered along with some alfalfa from the hay rack. Following instructions from Nashville Zoo vet Dr. Sean Barrett, Ted was given antibiotics and an anti-inflammatory to combat any tracheal inflammation.

All keepers and many of the maintenance staff of the Nashville Zoo are certified in CPR annually and as Doug says "I don't have to tell you how relieved I was to have had the skills necessary in this emergency situation! Ted is doing fine and he and Bill are currently being trained, but I don't leave halters on them unless I'm with them. I put them on each morning to take them out to the ride area and when I leave each evening I take the halters off, til the boys are a little better trained."

Congratulations to Doug and Brian for a job well done and also to Nashville Zoo Director Rick Scratz for making CPR certification a part of his staff's training.



Species Survival Plans: Strategies for Wildlife Conservation



By:

Robert J. Wiese, Ph.D.
Michael Hutchins, Ph.D.

*Softcover / 64 pages
Over 80 color
photographs
Full glossary
SSP Coordinators*

**\$15.00 AZA Members
\$18.00 Non-Members
\$17.00 Education/
Libraries**

Per Copy Rate for 25 or more:

**\$12.00 AZA Member
\$15.00 Non-Member
\$14.00 Education/
Libraries**

*Payment in U.S. funds only
Prices include shipping and
handling.*

Make checks payable to the
American Zoo and Aquarium
Association (AZA) and mail to:
AZA
Office of Membership Services
Oglebay Park
Wheeling, WV 26003-1698

Written in easily understandable language, highlighted with full-color photography shot around the world, this publication takes you behind the scenes of North American zoos and aquariums and introduces you to the new roles these institutions are playing in wildlife and ecosystem conservation.

To address the changing aspects of animal care and husbandry over the last decade, zoos and aquariums have expanded their role to include the conservation of selected species. *Species Survival Plans: Strategies for Wildlife Conservation*, provides an in-depth look at the research, field studies and technology used by over 160 professionally managed zoos and aquariums in North America.

This valuable resource will serve as an educational tool and unique reference for teachers, students, and visitors, as well as zoo and aquarium personnel.



AMERICAN ZOO AND AQUARIUM ASSOCIATION

Legislative Outlook

*Compiled by
Phyllis Nilson-Wojcik
Legislative Advisor*



Wild Bird Conservation Act of 1992 - Fact Sheet

According to a Fact Sheet published by the USFWS, neither the Wild Bird Conservation Act nor the Service regulations implementing the Act impose new burdens or requirements on buying, selling, breeding, transport, interstate commerce, or export of birds bred in the United States. What the Act does is restrict imports of certain exotic bird species into this country -- species listed in the Appendices to the Convention on International Trade in Endangered Species (CITES) -- whether taken from the wild or bred in captivity. Even then, a species listed in one of the CITES Appendices still may be imported if an individual shipment has received a Wild Bird Conservation Act permit or if it has been included in a list of species approved for importation without such a permit. Contrary to some bird breeder's current understanding of the Act and its regulations, this means that:

Fact 1: Birds still can be imported but their import may be restricted depending on their status under the Act. Ten families of gamebirds and ratites are completely exempted from the Act and its regulations -- Phasianidae, Numididae, Cracidae, Meleagrididae, Magapodiidae, Anatidae, Struthionidae, Rheidae, Dromaiinae, and Gruidae.

Fact 2: The Act does not restrict keeping, breeding or commerce of exotic birds within the U. S. or exports of such birds to other countries.

Fact 3: Except for the 10 bird families excluded for the Act, all exotic bird species exported to the U.S. from any country come under the Act's provisions.

Fact 4: Only captive-bred exotic bird species on the approved list may be imported without a permit, so as, in the words of the Act, "to preclude the importation of birds into the U.S. that have been laundered through captive breeding facilities." A species is on the approved list if it is: regularly bred in captivity, with no wild-caught birds of the species in trade (legally or illegally); or bred in a foreign breeding facility that qualifies under the Act's criteria.

Fact 5: Only aviculturists who plan to import and breed exotic bird species not on the approval list have to belong to a cooperative breeding program.

Fact 6: Regulations establish procedures for implementing and enforcing the Act. They cannot be used to change a law enacted by Congress. In passing the Wild Bird Conservation Act, Congress defined "exotic bird" to exclude the 10 families of gamebirds and ratites. Changes to a "species" status can only be done within the Act's framework of exemptions or in keeping with changes to a species' listing status under CITES.

Carrying out Congress' intent when passing the Act, the USFWS's regulation help to ensure a fair system for approving permits under and exempting certain birds from the Act's moratorium on imports of CITES-listed, wild-caught and captive-bred birds. They also ensure that imports of captive-bred species are allowed only if they do not detrimentally effect the species' wild populations or if they have not passed through an exporting facility serving as a "laundry" for wild-caught birds. If there are further questions, the Service

Legislative Outlook, Continued

asks that you contact the Office of Management Authority, 4401 N. Fairfax Dr., Rm. 420, Arlington, VA 22203.

>U.S. Fish & Wildlife Service "Fact Sheet" 5/94, Wild Bird Cons. Act 1992

Celebrate the Success of the Endangered Species Act With the Bald Eagle!

According to the National Wildlife Federation, the USFWS may soon propose the reclassification of the Bald eagle from Endangered to Threatened under the authority of the ESA. This classification would apply to the lower 48 states; the Bald eagle is not listed in Alaska, and is not found in Hawaii. Five states currently list the Bald eagle as threatened, including Washington, Michigan, Minnesota, Oregon and Wisconsin.

The banning of DDT on 1 January, 1973 contributed to the initial recovery of the Bald eagle population. On 14 February, 1978, the Bald eagle was listed as Endangered under the ESA. The fact that the Bald eagle was a magnificent creature in trouble, coupled with the fact that it is our nation's symbol of freedom, resulted in an outpouring of support from individuals across the country.

In 1962 there were only 417 pairs of adult birds in the contiguous 48 states. In 1992, however, 3,747 adult pairs of Bald eagles were counted. This success for the Bald eagle is also a success for the ESA. These eagles are living proof that the ESA works! This is certainly reason for celebration, but only is the ESA remains strong.

Use this opportunity to spread the word to zoo staff, visitors and the general public that:

- 1) The Endangered Species Act works, as demonstrated with the Bald eagle.
- 2) We need to continue to support a strong ESA.

The ESA of 1973 provided primary protection for the highly endangered Bald eagle population and has continued to strongly promote the continued growth and spread of their population through habitat conservation, public awareness, and reintroduction efforts. Perhaps your zoo took part in a reintroduction program for the Bald eagle. Everyone's hard work has paid off for the Bald eagle, but there are many other species, in habitats threatened by over-development and pollution, that need the ESA and the protection and sound conservation practices it promotes.

For information on promotional information, contact the NWF at 1400 Sixteenth St., N.W., Washington, DC 20036.

Write the Congress to encourage their support of the reauthorization of a strong Endangered Species Act:

The White House
1600 Pennsylvania Ave.
Washington, DC 20500

U.S. Senate
Washington, DC 20510

U.S. House
Washington, DC 20515

>*National Wildlife Federation - National Bald Eagle Conference Call 24 May 1994; and NWF EnviroAction June 1994*

Note: On 15 June 1994, the California gray whale became the first marine creature to have recovered sufficiently to be removed from the Endangered Species List. The whale's population, estimated to be less than 2,000 at the turn of the century, has doubled since the 1930's and is now estimated at approximately 21,000. Environmentalists were cautious in their reaction to the delisting, some voicing concern that such a delisting might well put this species in jeopardy again. Even though the Gray whale is no longer included on the ESA, it still received protection under the Marine Mammal Protection Act, International Whaling Commission rulings and from Mexico where the whale's calving waters are protected. --*Topeka Capital-Journal, 16 June 1994.*



1994 AAZK National Conference

AMERICAN ASSOCIATION OF ZOOKEEPERS



"A KEEPER'S PERSPECTIVE"

Omaha, Nebraska
October 9 - 13, 1994

Have you ever been to an AAZK Conference before? Or has it been a long time since your last Conference? Well, this is a **great** opportunity to attend, so don't miss out!

Omaha is **centrally located** within driving distance to most locales, and our hotel room rates are **cheap, cheap, cheap!** In addition to the **Holiday Inn Central/Convention Center**, where Conference activities will take place, there are other hotels in the area (both within two blocks of the Convention Center), including:

* **Super 8**

Rates: \$46.00 - \$54.00/night
Phone: (402) 390-0700

* **Days Inn**

Rates: \$47.00 - \$54.00/night
Phone: (800) 325-2525 OR (402) 323-2200

We have a **full schedule** of Conference activities planned from **papers, posters and workshops** to **Zoolympics** to special evening entertainment, so please get your registration form in now! We look forward to meeting you!

CORRECTION! Please note: the phone number to make reservations at the Holiday Inn Central is (402) 733-8401. The area code has mistakenly been printed as 404 in previous issues of AKF.

**1994 AAZK National Conference
Omaha, Nebraska
October 9 - 13, 1994**

CONFERENCE REGISTRATION FORM

Name _____

Address _____

City _____ State/Province _____

Zip/Postal Code _____ Phone (_____) _____

Zoo Affiliation _____

Position/Title _____

AAZK Chapter _____

Number of AAZK Conferences you have attended _____

AAZK Committee Member? _____

Presenting a Paper?	YES _____	NO _____
Conducting a Workshop?	YES _____	NO _____
Participating in Zoolympics?	YES _____	NO _____
Bringing an Auction Item?	YES _____	NO _____

Vegetarian? YES _____ NO _____ TYPE _____

T-Shirt ? YES _____ NO _____

SIZE: SM MED LG X-LG

Arrival Date and Time: _____

CONFERENCE FEES * (*Does Not Include Cost of Conference Proceedings*)

AAZK Member or Spouse	\$100.00	_____
Non-Member	\$110.00	_____
Late Fee (after Sept. 1, 1994)	\$ 10.00	_____

TOTAL FEE ENCLOSED \$_____

* Fees include a \$15.00 contribution to AAZK National.

Roommates are the responsibility of each registrant.

Please make checks payable to: AAZK Conference '94

Return This Form and All Fees To:

Carla Wieser
Omaha Chapter AAZK
Omaha's Henry Doorly Zoo
Omaha, NE 68107

AMERICAN ASSOCIATION OF ZOOKEEPERS



"A KEEPER'S PERSPECTIVE"

ELECTION.....'95

WE WANT YOU! Do you wish to help your professional organization? Become an AAZK Board Member. Four seats are up for election - those held by Ed Hansen, Ellen Bradfield, Mark de Denus, and Rachél Watkins Rogers whose terms expire at the close of the 1995 National Conference. New board members will serve a four-year term from the close of the 1995 National Conference until the conclusion of the 1999 National Conference. Why is this first call for nominations so early? **TIME** is the answer. Nominations, candidates verification and tallying mailed ballots require time. We also wish to notify winners early enough to allow them to make arrangements to attend the National AAZK Conference before they assume office. This will enable the new Board Members to become familiar with Board responsibilities and AAZK activities before they assume responsibility for our organization.

Duties of the Board of Directors

For a more detailed explanation of the expanded duties of the Board, refer to the By-Laws (available upon request from Administrative Offices in Topeka, KS).

- 1) Select, appoint or remove officers, committees, agents and employees of the Association, including - prescribing powers and duties.
- 2) To control and manage the Association and its property, passing upon acquisition and disbursements with approval of a majority of the Board.
- 3) To formulate policies, rules and regulations in accord with the Constitution & By-Laws.
- 4) To uphold the Constitution of AAZK and the policies of the Association.
- 5) To appear at Board meetings, to accept Board assignments and to devote the time to communications pertinent to all Board business, including answering correspondence promptly and efficiently.

Qualifications for Nomination

- 1) Nominee must be a Professional Member of AAZK, Inc. in good standing and must have been a member of the Association for at least one year.
- 2) Nominee must be presently employed as an animal keeper/attendant, veterinary technician, research technician or other personnel directly connected with the care, feeding and educational display of captive wildlife in a recognized zoological park, aquarium, animal reserve or other animal care facility in the U.S. or Canada and must have been in the zoological field for at least two years.

Nomination Procedure

- 1) Nominator Form:
 - a. List the name of the nominee, phone, address, and institution.
 - b) State in 150 words or less the reason(s) why the nominee warrants election to the Board of Directors.
 - c) Nominator signs forms and mails to NEC Chairperson.
 - d) Notifies nominee that they nominated him/her for the Board.
- 2) Nominee Biographical Form:
 - a) Professional background: places of employment, length of service, titles.
 - b) Membership in AAZK: National and local chapters, number of years, offices held, involvement in activities.
 - c) Educational background.
 - d) Membership in Affiliate Organizations: (AZA, Audubon, NWF, etc.)
 - e) State in 500 words or less why you would like to be on the BOD and any other pertinent information. (optional)
 - f) References. (one or two)
 - g) Nominee signs forms and mails to NEC Chairperson.

NOTE: Candidate is ineligible for nomination if **both** the nominator and nominee biographical **forms** are not **complete** and **returned** to the NEC Chairperson by **31 January 1995**. Send to: Rachél Watkins Rogers, Interim NEC Chair, Mammal Dept., San Diego Zoo, P.O. Box 551, San Diego, CA 92102.

Nomination Form for AAZK Board of Directors

Qualifications for Nomination:

- 1) Nominee must be a Professional Member of AAZK and must have been a member of the Association for at least one year.
- 2) Nominee must be presently employed as an animal keeper/attendant by a recognized zoological institution or aquarium in the U.S. or Canada and must have been in the zoological field for at least two years.

1. Name of Nominee: _____

Address: _____

Phone: _____

Institution: _____

Director: _____

2. State in 150 words or less the reason(s) why the nominee warrants election to the AAZK Board of Directors.

3. Signature of Nominator: _____

4. Form must be received by the NEC Chairperson by 31 January 1995.
Send to: Rachél Watkins Rogers, NEC Interim Chair, Mammal, Dept., San Diego Zoo, P.O. Box 551, San Diego, CA 92112.

Nominee Biographical Form
for AAZK Board of Directors

(To be completed by Nominee)

1. Name: _____

Address: _____

Phone: _____

PLEASE LIST THE FOLLOWING INFORMATION

2. Professional Background: (places of employment, length of service, titles)

3. Membership in AAZK:

a) National: number of years _____

Activities:

b) Local Chapter(s): number of years, offices held, involvement in activities.

- 4. Educational Background:**
- 5. Memberships in Affiliate Organizations: (AZA, Audubon, WWF, etc.)**
- 6. State in 500 words or less why you would like to be on the BOD and any other pertinent information. (optional)**
- 7. References (one or two): give name, address and phone number where they can be reached:**
- 8. Nominee's Signature:** _____
- 9. Form must be received by NEC Chair by 31 January 1995. Send form to: Rachél Watkins Rogers, NEC Interim Chair, Mammal, Dept., San Diego Zoo, P.O. Box 551, San Diego, CA 92112.**

CONFERENCE '94

The "COUNTDOWN TO CONFERENCE" has begun, and with only three months to go, here are a few reminders:

GET INVOLVED! For those of you who have been procrastinating or waiting for an opportunity to share your vast knowledge, now is the time!

- * Anyone interested in hosting a **workshop**, please contact Cathy Socha at the Omaha Zoo (402) 733-8401, Ext. 268. We need your input!
- * The deadline for submitting a paper and poster abstract is **15 July 1994**. We are anxious to hear from all of **you**!
- * Plan to take part in **ZOOLYMPICS!** This is the perfect opportunity to make a fool of yourself in public, not get arrested, and still be accepted by your peers!

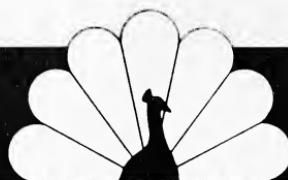
EXHIBIT TABLES are still available! This is a great opportunity to distribute information to an enthusiastic group of individuals who share a common goal of conservation. Cost for AAZK members if \$25.00; non-members, \$50.00. Exhibitors wanting to participate in Conference activities must pre-register. For more information, please contact Julie Neemeyer at the Omaha Zoo, (402) 733-8401.

UNITED AIRLINES has been chosen as the official carrier for the 1994 Conference. Attendees will receive discounts on applicable air fares, as well as Hertz Rental cars. For fares in the U.S. and Canada, call 1-800-521-4041, 7:00 a.m. - 10:00 p.m. EST, 7 days a week. Use Reference #543QP.

EXPAND your Midwest Experience! The Pre-Conference Trip to Kansas City includes: transportation from the KC airport to KC Zoo, transportation from the KC Zoo to Omaha for the Conference, lunch and dinner at the KC Zoo on Saturday, 8 October. All this for a registration fee of only \$20.00. For more information, please contact Jacque Blessington at the Kansas City Zoo, at their new phone number : (816) 871-5700.

The Platte River Chapter at the Folsom Children's Zoo in Lincoln, NE (only 45 minutes from Omaha) would again like to invite everyone attending the Conference to stop by. They will be open Sunday, 9 October - Friday, 14 October (8:00 a.m. - 4:30 p.m.) just for you! The zoo is easy to find: just take the 27th St. Exit off I-80 south to B St., and look for them on your left. When you arrive, stop by the zoo office for a special welcome and introduction to the zoo. They look forward to seeing you!

SEE YOU IN OCTOBER !!



Quality exotic animal diets

SPECTRUM

**Nutritionally balanced
Fixed formulation • Economical**

When you need a complete line of high-quality dry and frozen animal diets for your feeding program, call Animal Spectrum.



Frozen feline diets

Frozen bird of prey diets

Frozen canine diet

*Chunk and chopped horsemeat,
hearts, livers, rib, shank,
knuckle bones, and tailbones*



Banana flavored psittacine/primate, 20% protein, dry
Banana flavored primate, Pro-Plus 25% protein dry
Leaf Eater primate dry *Omnivore dry*
Llama Vitamins & Minerals dry *Polar Bear dry*
Marmoset/Tamarin dry *Ratite dry*
Hoofstock supplement, with Selenium dry

BROOD-RITE HEATERS

*Bulbless heaters—nothing to break
Safe around all animals and
bedding material.
Even heat distribution in 240, 500,
or 750 wattages.*

One call does it all

**TOLL
FREE 1-800-228-4005**

Animal Spectrum, Inc.
P.O. Box 721
North Platte, NE 69101-0721

Beyond the Iron Bars: Part 1

A Brief Look at Zoos of the Former Soviet Union

By Rana Bayrakci, Animal Keeper
Point Defiance Zoo & Aquarium
Tacoma, Washington



Packing all our gear on our backs from September through November of 1993, film maker Sean Smith and I traveled as part of a small delegation investigating the status of eleven zoological parks of the Former Soviet Union (FSU). We visited facilities at the following cities' zoos: Kiev, Khar'kov, Askanaya-Nova and Rivne in the Ukraine, Grodno in Belarus, Kaunas in Lithuania, Riga in Latvia, Tallinn in Estonia, and Kaliningrad, St. Petersburg and Moscow in Russia. Seven of these eleven zoos maintain small aquariums displaying tropical fish species common to American pet stores. Although it is difficult to generalize eleven different zoos in six different countries, in this article I will attempt to briefly describe FSU zoo collections, exhibits, FSU people's cultural attitudes, zoo budgets, kitchens and animal feed, education programs and research. In my second article I will discuss zoo keeping in FSU zoos.

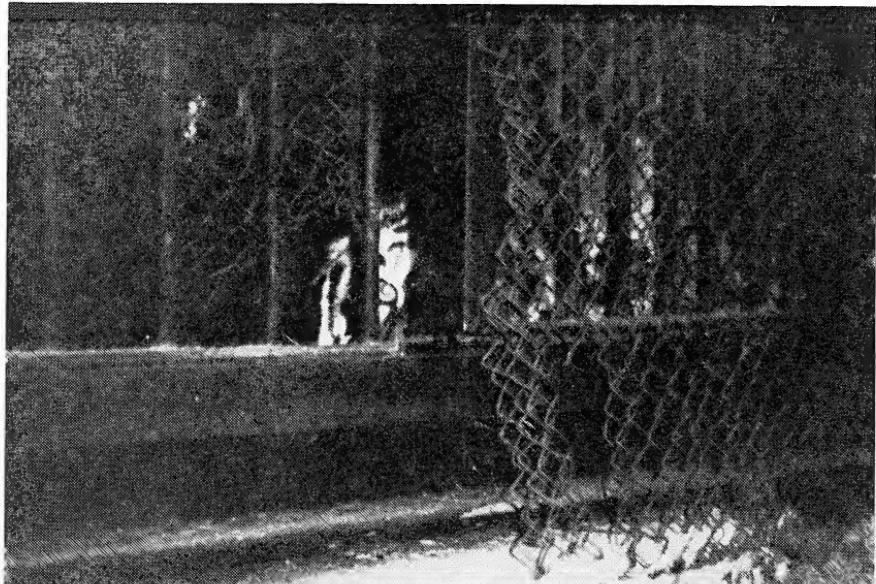
A typical FSU zoo exhibits a menagerie style of animal collection. Animals are grouped into sections within the zoo by general classifications such as carnivores, hoofstock and birds rather than by ecological region. Exhibit cages and yards are small, decrepit and dirty compared to Western zoo standards. And yet, many animals are doing remarkably well, remaining healthy and even breeding successfully in captivity. Cheetah keeper Elena Aliskerova of the Moscow Zoo explains, "Our animals want to survive, just like our people (of the FSU)." However, there are a multitude of single animal exhibits at most FSU zoos.



Photo above shows a typical FSU Bear cage and graphic. This exhibit is at the Kiev Zoo, Ukraine. (Photo by Sean Smith)

Beyond the Iron Bars: Part 1 - Zoos in the Former Soviet Union, Continued

The large number of single specimens we observed can be attributed to old Soviet law and greed. The old style of zoo directing was dictated by USSR rules: the greater number of animal species a zoo had, the greater the zoo's budget. Kaunas Zoo's (Lithuania) Alvydas Jaheviceus called this the "disease of Soviet zoos". Most older directors still operate by this sort of attitude; they are more concerned with gaining additional species for the collection than completing animal pairs. Another reason single specimens often remain alone is a self-serving attitude. As Jaheviceus put it, the problem with FSU zoos is that they all hold large collections of the same animals but won't share to create pairs. Many FSU keepers and specialists spoke of such 'animal hoarding'. There is a high level of competition for animals, and few zoos will relinquish rare animals.



Young male Tiger at the Moscow Zoo, Russia (Photo by Rana Bayrakei)

The general style of cage exhibits is rather bleak and monotonous, much like the box-style apartment buildings common in all FSU countries, and similar to exhibits in American zoos a few decades ago. A multitude of bars surround small cage spaces; exhibits may contain a branch, log, tire or no enrichment at all. Exhibits with yards are generally small, some entirely concrete and others dirt. However, some zoos like Riga Zoo (Latvia) and Rivne Zoo (Ukraine) are good zoos by Western standards; many of their exhibits have spacious yards and even pastures for grazing. Each zoo is characterized by decent, solid exhibits mixed among the older-style, generally cramped, poor examples. Even Kiev Zoo (Ukraine) boasts several grotto exhibits for large cats in a well-designed building; however, the exhibit is disintegrating rapidly though it was built only ten years ago.

A universal problem in the USSR was poor workmanship, and this is exemplified by FSU zoos. The older zoos are struggling with shoddy construction and are desperately making efforts to 'reconstruct' the collapsing exhibits. The Island of Animals exhibit at Kiev Zoo was built just ten years ago, yet it reeks of cat excrement and is falling apart. The walls and public walkway of the large bear grotto exhibit at Riga Zoo are collapsing. Metal fencing is piled in broken wire heaps inside an occupied hoofstock exhibit at Kaliningrad Zoo (Russia). Zoo exhibit construction was completed by workers who knew nothing about animals and were angry that money was being spent to build housing for animals rather

Beyond the Iron Bars: Part 1 - Zoos in the Former Soviet Union, Continued

than people. The culture of FSU people is very different from our own, and respect for animals is generally replaced by a practical attitude: what can a given animal do for me? Kiev Zoo Director Alexej Lepeshkov described the culture of his people with the following anecdote: He once overheard two small girls discussing two rare, Ukrainian ducks listed in the IUCN Redbook and on exhibit at Kiev Zoo. One girl said to the other, "Did you bring your knife? I want to have dinner." To most FSU visitors, zoos are a place for entertainment, not education. To city administrators who determine zoo budgets, zoos and their animals rank far below programs designed for people.

Budgets

These zoos are terribly restricted within tiny budgets allowed by the Ministry of Culture, the sector of city government presiding over zoos. This Ministry controls museums, theaters, opera, and ballet as well as zoos. In the FSU, cultural heritage is a significant part of the peoples' lives. Therefore, zoos receive little attention or money as the least significant, historical or 'cultural' subject. Zoo exhibits are generally very old and in dire need of reconstruction and often replacement. However, budgets barely cover necessary food, medical supplies and staff salaries, leaving little to no money for basic maintenance or new exhibits. Kiev Zoo in the capital city of the Ukraine is similar in size to Woodland Park Zoo in Seattle, and yet Kiev's yearly budget is less than five thousand dollars. In contrast, Woodland Park Zoo has an annual budget of nine million dollars.

Tiny budgets allow only low wages. Since money determines prestige in the FSU, there is absolutely no prestige associated with zoo work. Zoo workers are not always dedicated to their job, nor do workers often get fired for performing poorly. The lack of order is obvious after a walk through the zoo's public pathways which are littered with junk. At the Kiev Zoo, large metal cans were filled with a greasy fluid and covered haphazardly with tar paper next to a tiger grotto exhibit. At the Moscow Zoo, cut logs have littered the pathway by the primate cages for three years now, while a huge metal tripod lies on its side near a waterfowl pond. Apparently, many zoo directors do not walk the grounds of the zoo to ascertain the situation and issue orders to remove unnecessary junk.

Kitchens & Feed

Although budgets are small and food prices fluctuate drastically, zoos have so far been able to keep their animals fed. Each zoo has a separate kitchen building and staff to distribute daily animal rations. Common kitchen layouts include separate rooms for the following purposes: storage of vegetables (sometimes separated into a room for carrots and a room of potatoes and so on), cutting, weighing and sometimes grinding meat, meat cold storage, grain and dry food storage, often with grinder, and one or more rooms for food preparation. Some kitchens store food off the ground while others pile food all over the floor. Every FSU zoo kitchen has large machines resembling rock tumblers used to wash vegetables, which are then cooked. Another cooked food, a 'mash', is used at every institution. Mash is basically a grain casserole made of assorted grains and miscellaneous available foods which are cooked and then fed to virtually every mammalian species from primates to bears to elephants.

Food is prepared and delivered by the kitchen staff according to diets developed by the specialists or heads of each zoo section. Further chopping and preparation is completed by the section keepers. Several kitchens have specific, labeled buckets and containers for each zoo section to make sorting and delivery more efficient. Food deliveries are generally made by horse and cart, although a few zoos used tractors towing carts. At Riga Zoo, we watched a man deliver mounds of fresh vegetables from the back seat of a loaded old Lata, the most common model of Russian automobile. Most zoos followed hand-written diet sheets, but Tallinn Zoo's kitchen has a unique advantage: a computer specially designed to keep track of food inventory and orders, animal diets, and nutritional information including Ca, P, Na, Kcal, percent protein, and percent indigestible material/celluloid content of many foods.



Food thrown to begging Bears litters the front of this ninety-year-old bear exhibit, Khar'kov Zoo, Ukraine. (Photo by Sean Smith)

When zoos feed 'live' food such as rats, mice and rabbits, they are freshly killed and then presented to the carnivore, much like American zoos. While some zoos had separate rooms or buildings to breed and raise live food, others simply purchased the animals when live food was needed. Live insects were fed by many zoos, including Moscow and Riga. In fact, Riga has two entomologists and an entire building devoted to breeding a large variety of grasshoppers, cockroaches and other insects for animal feed. Caura Manorob and his wife collected all the insect specimens themselves, and invited me to hold a spitting Madagascar cockroach! They are breeding more species than necessary to feed, studying their needs and hope to someday have their own insect exhibit building at the zoo.

Education

Public education is not the primary concern of zoo administrators, which is demonstrated by the small size of FSU zoo education departments which provide a few educational programs. The Khar'kov Zoo (Ukraine) has an exciting, widespread program in progress that is specifically designed for children and very popular. The zoo's information director collaborates with other staff members to write informational coloring books for children that are distributed all over the FSU. The books are published by company sponsors, and are sold at zoos and in book stores. We were given copies of several of the completed books, including a book on primates entitled 'Happy Family'. Book topics are not limited to zoos and exotic animals; in progress during our visit was a book on domestic pets. However, such a program is a rare occurrence at these zoos.

Kiev Zoo and Riga Zoo developed traveling zoos designed to bring exotic and domestic animals to the people in tiny villages of the FSU who would otherwise never see or touch such animals. Their goals were entertainment and education. Zoo educators said that villagers would be more interested and apt to protect and care for animals they had actually seen and possibly touched. The Kiev Zoo's program ended with the petroleum shortage since animals were transported by trucks. Riga Zoo's version traveled by horse and

Beyond the Iron Bars: Part 1 - Zoos in the Former Soviet Union, Continued

carriage, but will not be repeated; Information Director Ingmars Lidāka said that the traveling zoo made Riga Zoo very popular in Latvia, but now they "need to think of something new".

Most zoos have ongoing educational programs with local schools. Children learn about zoo animals in the classroom and then visit the zoo for further instruction by their teachers or zoo educators. Education departments at zoos such as St. Petersburg and Moscow have tame animals separate from the zoo's collection that visit schools, hospitals and orphanages for a hands-on, educational experience. Animal diplomats include rabbits, porcupines, raptors, foxes, crows, turkeys, chickens, monkeys, snakes, and a wide assortment of other animals. Slide lectures on reptiles, life in the zoo, birds in the city and other topics are presented to adults and children for a small fee at St. Petersburg Zoo and at no cost at Moscow Zoo. However, these lectures are presented during the day and are generally not well attended. A trip to the zoo for a FSU family is generally for entertainment, to feed the animals and poke them with sticks.

The Club or Circle of Young Naturalists is by far the most successful educational program conducted by FSU zoo education departments. The hundreds of children who participate in this free club have the opportunity to learn about animals and their needs both in the zoo and in nature, make friends for life, participate in annual reunions, and generally keep out of mischief in an educational environment. The children join the Club between 10-15 years old, and usually meet on weekends. The members must complete one long term research project on their own each year; topics include the behavior of the lynx and a comparison of dingo and domestic dog behavior. Several zoos have entire libraries devoted to the Young Naturalist program, so reference materials are readily available for reports. Every summer, many clubs spend three to four weeks living in the woods, learning about animals in the wild and how to live in the forest. Many members go on to become zoo keepers at the same institution, having completed the only type of 'keeper training course' available. Other alumni are now prominent actors or political figures, researchers, vets, zoo directors and administrators. Many zoo personnel we spoke with began their careers as Young Naturalists. Members are encouraged to continue their education at the university prior to becoming a zoo keeper, but many keepers are hired with only high school level of education. Programs such as the Young Naturalist Club play an important role in the education of city children about animals, zoos and nature. Such programs create and promote skilled, quality keeper staff.

Research

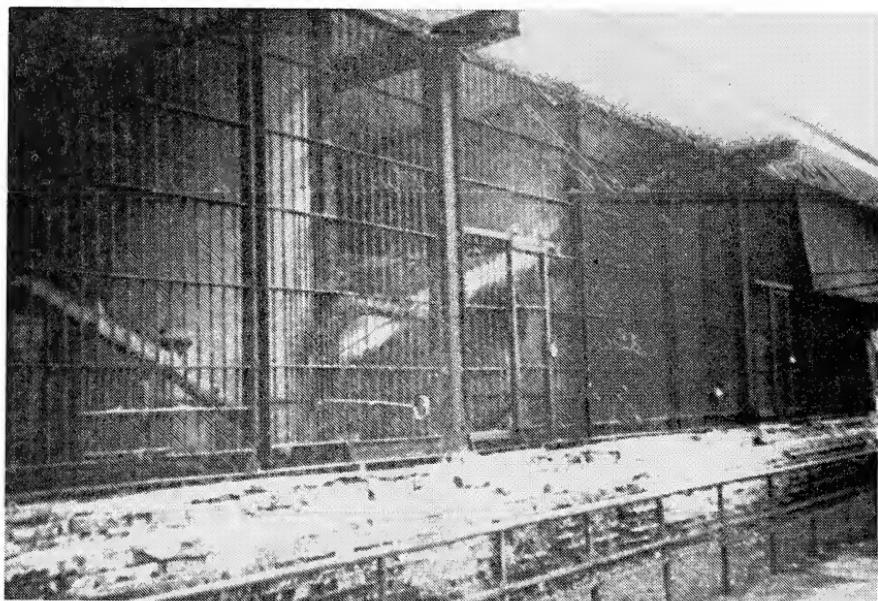
Active research is taking place at five of the eleven institutions we visited. Most zoos have scientific or information/education departments, but only five zoos are using their resources for scientific research Askanaya-Nova, the historical preserve and zoo in southern Ukraine, is primarily a base for scientific research, employing many scientists with the following goals: acclimatization, domestication and hybridization. They are most famous for their decades of research on the African giant eland (*Taurotragus derbianus*) studying the milk and meat production of these antelope as a substitute for cattle in Africa. However intriguing and plausible this research may seem, it still has not been applied practically. Other research projects include developing a project to breed and reintroduce native Ukrainian bird species and crossing various hoofstock to analyze hybrid animals.

Riga Zoo had perhaps the most exciting research project taking place in their Ecological Laboratory with the help of a few students from the local university. The lab is run by Juris Zvīrgzds, whose goal is to understand and sustain rare Latvian animals, partly by studying extinct Latvian species. They are breeding two rare frog species (a species of Latvian tree frog and *Bombina bombina*, the fire-bellied toad) and reintroducing them to the wild with some success, according to their observations and measurements. Riga Zoo is the only FSU zoo actively involved in captive breeding and reintroduction of a rare or endemic species. However, Tallinn Zoo is home to talented biologist Tit Moran, who is conducting extensive field research and captive breeding efforts with the endangered European mink (*Mustela lutreola*).

Beyond the Iron Bars: Part 1 - Zoos in the Former Soviet Union, Continued

Among the scientific department staff of the Moscow Zoo is Helene Volodina, who has recorded and studied the spectrum of captive Cheetah (*Acinonyx jubatus*) sounds since 1984. We were fortunate to hear several of her recordings and examine their corresponding sonographs. She uses sonograph equipment at a local university and identifies each unique sound by a German name. The name corresponds with descriptions defined by German scientist Peter Hoff. Helene has also studied the sound of other zoo animals, and someday she hopes to study Cheetah sounds in the wild.

Animal behavior is not a recognized scientific field in the FSU; there is little interest in and no college courses about the subject. At the St. Petersburg Zoo, we met Maria Sokolocskaya and Elena Agadonova, two young women who recently graduated from college and are currently studying animal behavior on their own behind the scenes at the zoo during the evenings and weekends. Maria and Elena conduct their own structured, scientific experiments studying the predatory behavior of small carnivores, concentrating on the Marbled polecat (*Vormela peregusna*). The remaining zoos observe and record behavior changes and behavior during breeding season for future reference, but perform no organized research.



Typical FSU cages for cats, bears, primates and other animals. This set of cages is only 25 years old and is located at the Moscow Zoo, Russia. (Photo by Rana Bayrakci)

During the year and a half of planning and research prior to the actual trip, I prepared myself to view the worst possible zoo conditions. By the time our group landed in the Kiev airport, I felt ready to face starving animals in tiny, dark enclosures. But the trip was not overwhelming or depressing, because most animals were not starving. Although difficult times now exist in these countries of the FSU, they are not impossible times. As Askanaya-Nova's (Ukraine) Director Victor Gavrilenko said, they have survived worse times than the present, and at least now there is no war. Yes, many exhibits are too small, too dark and too dirty. Yes, animal diets often lack sufficient nutrients, vitamins and specific foods. FSU zoos need international support to transform into modern zoos. Workers at these zoos have solid backgrounds in survival and making good with what little goods are available. Their invaluable experience and knowledge combined with consistent international support is vital in the coming years of FSU zoo development.

(Author's Note: I would like to thank the Mt. Tahoma Chapter of AAZK and the C.A.T.S. Foundation for their partial funding of this trip.)





*By Kayla Grams, Topeka Zoo and
Gretchen Ziegler, Wildlife Safari Park*

ENVIRONMENTAL ENRICHMENT: NEW HORIZONS IN ANIMAL CARE

*By Terri Peterson, General Curator
Wildlife Safari, Winston, OR*

There is a new approach to animal care gaining momentum in the zoological field as having tremendous potential to positively impact the quality of captive animal husbandry. It is termed Environmental Enrichment. Having recently attended the first Conference on Environmental Enrichment, hosted by the Metro Washington Park Zoo, I would like to share some of the exciting directions this new discipline is leading us at Wildlife Safari.

Simply defined, environmental enrichment refers to the modification of an animal's environment to improve that animal's well-being. Enrichment opportunities include devices, browse, and other feeding programs that expand natural foraging behavior as well as toys, structures, and enclosure modifications that promote natural exploratory behavior. The goal with environmental enrichment is to increase the expression of natural behaviors and decrease the occurrence of unnatural or unwanted behaviors.

Some might ask is environmental enrichment so new? Not really. If you ask most animal keepers about this new concept of environmental enrichment, they will likely tell you they have been doing it in some form or another for years and just considered it part of their job. The keeper is on the front line, directly involved in improving the lives of their precious charges. They are usually the first to see problems and the individual responsible for developing enrichment opportunities to help alleviate problems.

Others might point out that as far back as the early psychological studies of Tinbergen and Skinner, the importance and interrelatedness of an animal's mental state and its environment was documented. Later Hediger, generally considered the "father of environmental enrichment", stressed the need to explore the use of enrichment to promote natural behavior as a means to better animal well-being.

What is new however is the application of a name to this aspect of animal care. By defining environmental enrichment what has resulted is the creation of enrichment strategies, the communication among zoo professionals of successful enrichment programs, research and evaluations of enrichment activities, incorporation of enrichment opportunities into enclosure design, and acceptance of the discipline as a viable part of a zoological park's animal program.

At Wildlife Safari we have been slowly incorporating environmental enrichment activities into many of the enclosures, especially in the Village and carnivore areas. In the Village there have been some wonderful opportunities to enhance the environments of the Lemurs, Gibbons, Golden-lion tamarin, and even Wallabies. Placement of extra feeding stations in the Red-ruffed and Ring-tailed lemur enclosure allows the keeper to distribute the food to 10 or more feeding locations in a day, reducing the aggression associated with feeding time. Because it is impossible for a dominant animal to guard that many feeding stations all lemurs get some of their favorite food items. The "grab what you can get" method of foraging has been altered to a more natural, all-day activity of foraging. Even

Enrichment Options. Continued

the type of feeder logs we use is enriching in that many of them have cracks and natural cubbyholes where we can hide the food, especially treats. A result we have noted is the timid Ring-tailed lemurs appear to be more relaxed and more confident throughout the day. Even lemurs can do better with a little stress reduction in their lives.

Another Village enclosure where a concentrated effort has been made is on the Gibbon island in the lower village pond (outside the restaurant). A young engineering student named James Foss wanted to offer his time and skills for a short-term volunteer project. Considering these highly intelligent animals as high priority for enrichment I suggested he tackle the Gibbon island. He gathered all the environmental enrichment information we had to share and went to work. He spent many hours designing and perfecting a number of creative enrichment devices and in July spent the day with us remodeling the island and installing his creations. The devices included a sandbox to bury seeds and appropriate food items, a swing, and a welded metal rod globe, about three inches in diameter, slung inside a cargo net-type rope holder. We have filled the globe with hay and hide food items in it daily. This is well used by the Gibbons who spend time looking for food even when they have found everything we placed in it.

With another device that has been successfully used by many species of animals, called a puzzle feeder, James was able to improve on an existing concept. Previously all puzzle feeders were made of PVC pipe, two sections, one (capped to hold food items) inside of the other. Holes were cut in the pipes so that they could be lined up in such a way the animal could shake out the treats inside. The PVC was very functional but had an unnatural appearance. Utilizing sections of larger bamboo from the Village area, James fashioned two puzzle feeders with PVC on the inside and bamboo on the outside. They look great and function just as well as the others. In fact the one I took to the enrichment conference was a big hit!

Enrichment can also be accomplished without any devices. For example, a very enriching activity that has been done for years at the Safari for the bears and cats is offering large bones in the drive-thru sections during the day. Anyone who has witnessed a brown bear romping through the pond with a three-inch bone he wouldn't trade for anything can easily understand just how enriching that activity can be. Other enrichment opportunities that have been successful recently at the Safari include hanging cowhide sections over tree limbs in the tiger's compounds (they jump up to get them then carry them around all day), freezing animal blood and water in a large balloon to create a "blood ball" which slowly melts as the lion licks it around its enclosure, and putting strong smelling items (i.e. log from another animal, Elephant manure, perfume, and even herbs) in locations where the inhabitants can roll or scent mark it. This 'scent enrichment' has been particularly effective with our 14-year-old Margay, "Seda" whose vision seems to be declining. Spraying perfume on logs in her outside enclosure or dusting a pile of leaves with herbs elicits some wonderful, kitten-like, behavior on her part and gives the visitor an opportunity to see some very natural behavior.

Another form of enrichment that Wildlife Safari provides which has its pluses and minuses is the visitors and their vehicles. It could be argued that a car window is very enriching to an ostrich, that a stopped vehicle in the bear drive-thru suddenly becomes more activity-promoting, and that a camel peeking into an open window finds a new world of stimulating opportunities.

An important aspect of providing environmental enrichment in a setting such as Wildlife Safari is the need to provide variability in the enrichment offered. Virtually all animals become habituated or bored with any new toy such as a ball. If associated with food, such as with the feeder puzzle, the interest remains somewhat but does show a decline. Novelty in what is offered as well as how it is presented is a key factor in the animal's response. As examples, on the Gibbon island use of the feeder devices and locations varies from day to day, and in Bears, bones are distributed on a random basis.

In the present day concepts of appropriate animal exhibits, a facility like Wildlife Safari rises to the top as one that provides large, expansive, more natural living areas for the

Enrichment Options, Continued

animals. While many facilities strive to recreate the wild (an impossibility) the Safari provides functionally natural exhibits that include opportunities for natural groupings such as herds and flocks. This type of environment elicits a broader range of natural behaviors and may lead some to believe the animals have all they require. Even though our animals lead a rich life there are many ways to better it. Part of being a zoo professional is always looking for those opportunities and environmental enrichment is a tool to be developed.

At the time of this writing Wildlife Safari is applying for grants to support an environmental enrichment program, consisting of a coordinator position, materials, and support equipment. We are paralleling those applications with grants to improve specific areas that may need more in-depth efforts and resources, such as the Bear drive-thru, the Elephant yard, and the creation of a browse farm. Not only will the health and well-being of our animals improve but the impact will reach into every aspect of what we do. Enrichment opportunities can be structured and placed so as to improve the visitor's visibility of our animals and as animals express more natural behaviors, the educational value of the entire park increases and visitors leave with a more realistic awareness of wildlife. This environmental enrichment program will allow us to develop appropriate enriching opportunities that keepers can incorporate into their daily duties. It will also allow us to conduct behavioral research as well as visitor impact assessments that would be valuable for other facilities embarking on similar efforts.

Environmental enrichment has many applications and benefits, some known and some yet to be discovered. We know, for example, that enrichment can decrease aggression, increase activity, reduce stress and boredom, and decrease unwanted and repetitive behavior such as pacing. It can encourage play behavior (alone or between animals), prolong foraging, improve digestion, and help to stabilize social groupings. As my colleagues at the First Environmental Enrichment Conference theorized, it may improve captive animal longevity and captive breeding successes, and could dramatically affect what message our visitors take with them after visiting Wildlife Safari. Environmental enrichment has the potential to impact all facets of our goals as zoological, conservation institutions.

Keepers take note and advantage of this "new" and newly accepted discipline in the zoo world. You have the power within your daily activities to dramatically affect how your zoo presents itself to your visitors. Write an article for your own newsletter, document your successes, gather support from supervisors by getting results, and take time to watch your animals and the fruits of your labor and creativity. You'll probably find a great sense of job satisfaction. Improving the visitor's experience while improving the lives of your animals helps support the mission and goals of your entire institution. Everybody wins!!



SPECIAL OFFER FOR AAZK MEMBERS JULY & AUGUST ONLY

A GUIDE TO AMERICAN ZOOS & AQUARIUMS

by Darcy & Robert Folzenlogen

Visitor Information, Special Exhibits, Seasonal Festivals, Breeding
Achievements & Research Activities for 173 Institutions
Recommended in the AAZK and AZAD journals!

Suggested Retail Price: \$16.95

Now only \$10.00 for AAZK members. Send this ad + \$10.00 to
Willow Press, 1030 Willow Ave., Glendale, Ohio 45246

Enrichment Opportunities for Young Lovebirds (*Agapornis personata*) in Captivity

By Gina M. Sequeira

Department of Psychology

San Francisco State University, San Francisco, CA

Abstract

Recent literature in animal care frequently addresses the high incidence of abnormal behavior in captive parrots and suggests that these birds lack appropriate environmental stimuli which would otherwise elicit and reinforce normal species-typical behaviors. Food-containing devices and climbing ropes have been recommended as potentially effective sources of enrichment for birds and nonhuman primates in captivity. A pair of young Lovebirds (*Agapornis personata*) were given four enrichment opportunities which were 1) a food-filled pine cone, 2) the opportunity to forage for scattered food, 3) external stimulation from a garden waterfall, and 4) a climbing rope, to test the hypothesis that certain normal behaviors would increase as a result of providing novel stimuli in a stable environment. Results supported this prediction and it was concluded that: 1) investigating a novel food item increased over time, 2) running water promoted flying, and 3) a climbing rope did not elicit interest when natural branches were present. The perpetual need for new enrichment ideas to improve the welfare of animals in captivity is emphasized in light of these findings.

Introduction

As with many exotic zoo animals who spend the majority of their existence within the parameters of captivity, caged and aviary birds are undoubtedly prone to developing aberrant behaviors and repetitive stereotypies because they are essentially deprived of many opportunities in the natural wild environment that would ordinarily elicit normal species-appropriate behaviors (Birchall, 1990; Blanchard, 1993; Boorer, 1972; Hediger, 1964, 1968; Keiper, 1969; King, 1993; Preiss & Franck, 1974). It has been aforementioned as early as Hediger (1964) that stereotyped movements represent a sure sign of wrong treatment in the area of animal husbandry, and second, that abnormal behavior in isolated and confined animals can work as a substitute mechanism for instinctual activity. Hediger (1964) states further that the goal of stereotyped behavior (e.g. self-mutilation, pacing), which serves no apparent function, is to relieve boredom and stress from the unfulfillment of biological and psychological needs. Essentially abnormal behavior occurs in an abnormal environment for captive animals, that is, one that is bleak, unnaturalistic and inadequate for the particular species it holds.

Parrots are extremely gregarious birds and are prone to developing stereotypies unless they are housed in large aviaries with members of their own species. Veterinarians and researchers depict the lack of social partners, poor inferior diets compared to that in the wild, and tiny cages smaller than wing spans as the major factors leading to stress, depression and death in captive birds (Birchall, 1990; Blanchard, 1993).

A number of environmental enrichment designs for captive animals have been proposed and/or investigated in the interest of treating the deleterious effects of housing animals in unnaturalistically confined environments (Bloomstrand et al., 1986; Carlstead et al., 1991; Champoux et al., 1987; Delsault & Roy, 1980; Keiper, 1969; King, 1993; Line et al., 1991; Markowitz, 1982; Reinhardt, 1989). The main purpose of this study was to measure the behavioral effect of providing various types of environmental enrichment for members of the parrot genus *Agapornis* by introducing naturalistic and unpredictable occupational opportunities, some of which were related to feeding. Another question of practical and theoretical relevance was to investigate the role of habituation from an occupational stimulus, that is, to determine if and when any significant behavioral changes from baseline would gradually disappear over time due to boredom (Carlstead et al., 1991; Line et al., 1991).

Enrichment Opportunities for Young Lovebirds in Captivity, Continued

It was anticipated that the provision of novel manipulatable stimuli in a stable environment would increase the level of normal species-typical behaviors as a consequence of investigatory interest. Moreover, if a specific enrichment stimulus was effective in promoting psychological well-being, an increase in one or more normal behaviors would result and at least sustain over one week of enrichment. Secondly, it was hypothesized that particular enrichment stimuli would act as appropriate releases for certain instinctual behaviors (e.g. foraging, locomotion) while having no apparent effect on other normal instinctual drives (e.g. grooming, wing displays). Put plainly, a specific stimulus used for enrichment would only generate an observable effect on specific behaviors (Delsaut & Roy, 1980; Keiper, 1969).

These birds exhibited no abnormal avian behaviors such as stereotyped pacing and flight patterns, feather plucking, or spot-pecking. Therefore, it was decided that significant increases in any of the non-aggressive normal behaviors during each week of enrichment would indicate that the particular enrichment apparatus may be potentially effective in enhancing the welfare of these animals.

Method

Animals and Housing

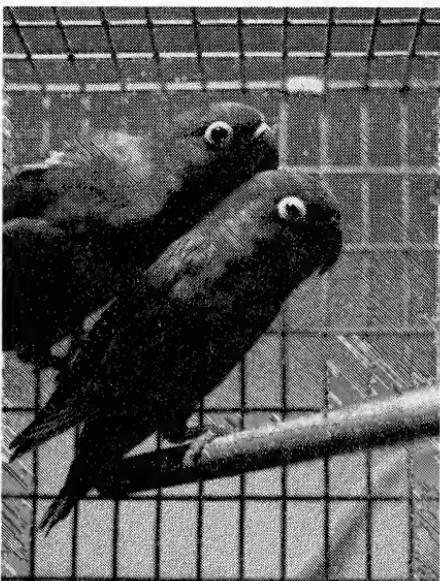
The subjects were two 6 to 7-month-old experimentally naive Black-masked lovebirds housed in an outdoor aviary in Oakland, CA (1.0 Tiny and 0.1 Sleek). The aviary measured 1.20m x 1.10m x 1.20 m and was suspended at 1m from the ground. Furnishings that were already present included two upright acacia branches measuring 80-90cm tall which were used for climbing, chewing, and leaf-plucking, and three natural perches that were each approximately 3cm in diameter and 1m in length. A wooden nestbox measuring 24cm x 20cm 36cm with a 6.5cm entrance hole was provided for night shelter and was located on the high corner of the enclosure.

Apparatus

Most of the enrichment opportunities have been proposed elsewhere (food scattering, Carlstead et al., 1991; pine cone and rope, King, 1993; rope, Oakland Zoo, pers. obs.), however there has been no systematic study of their effectiveness for captive parrots. The four enrichment opportunities were randomized for order of experimentation and are described below.

Experiment 1: A natural pine cone measuring 10cm high and 9cm wide from the center, was filled with 5-7g portions each of peanut butter, spray millet, and parakeet mix. The birds could obtain the food by climbing around it or by stretching from a branch to forage in different parts of the cone.

Experiment 2: The same amount of treat mixture used for the pine cone was smeared and disbursed on the trunk, branches, and leaves of one of the 80-90cm tall acacia trees. It was anticipated that this method of feeding would promote foraging and increase locomotory activity.



Black-masked lovebirds *Agapornis personata* Sleek (0.1) and Tiny (1.0) from l to r. (Photo by the author)

Enrichment Opportunities for Young Lovebirds in Captivity, Continued

Experiment 3: The mechanical garden waterfall was a running water hose placed on top of a tiled tree trunk measuring 84cm in diameter. The structure was located on the ground at 1.4m from the aviary. Water from the host spout ran 64cm down into a pool of water 56cm in diameter which flowed into a narrow stream 38cm in width beneath the enclosure. It was expected that the auditory and visual stimulation of natural running water would elicit excitement and raise activity levels.

Experiment 4: The double-twined rope made of natural fiber measured 56cm in length x 3cm in thickness, and was hung vertically at 70cm high from the base of a standing acacia branch. Climbing ropes have been employed as a popular source of enrichment for birds and primates (King, 1993; Oakland Zoo, pers. obs., 1994). With the abundance of natural branches however, it was uncertain whether the rope would increase locomotory behavior or elicit any interactive interest.

Procedure

Seven naturalistic behaviors - beak fence or fight, chew or carry wood or leaves, climb or walk, eat, fly between perches, preen or groom, and wing display or wing stretch - were observed and measured for five days during a two-week period before introducing the first enrichment opportunity. Observations were recorded by filming each subject alternately for 15 minutes (e.g. Tiny, Sleek, Tiny, Sleek) via a hand-held video camera. During baseline and for every week of enrichment, an animal received 30 minutes of recorded behavioral observations per day or 2.5 cumulative hours for the baseline period and for each five-day experimental week. All observations were taken between 1400 and 1700 hours. Standard feeding and cage cleaning routines were followed during baseline and throughout the 28 days of enrichment.

Results and Discussion

Experiment 1

On Day 1, Sleek perched and ate from the pine cone 1 hour and 45 minutes after it was introduced, and Tiny never touched it. After the initial hesitation, there was a gradual increase in manipulation time on subsequent days which peaked on Day 4. There was some evidence of early habituation, that is in this case, the loss of sustained interaction with an enrichment object through time when the birds foraged less from the pine cone on the last day of the experimental week. It appeared that the pine cone treat worked as an appetite stimulant since both birds immediately went to feed from the bowls after foraging from the device during each observation day. There was not a significant difference between Sleek and Tiny in the relatively small amount of time spent manipulating the pine cone (mean min/2 hr = 2.72 ± 0.91 SEM, and 3.22 ± 1.29 , respectively, sign test, $P = 1.00$, n.s.).

The pine cone elicited an increase in appetite/investigatory behavior (chewing or carrying wood/leaves), as well as an increase in aggressive acts (beak fencing or fighting) for the female bird only (Table 1). When compared to baseline measures, Sleek spent less time eating by the standard method (feeding bowls and millet spray), and Tiny spent a little less time preening, but these effects did not reach statistical significance. The presentation of the pine cone also elicited some other behavioral changes from baseline measures for Tiny (Table 2). Appetitive and locomotory behavior increased, namely, manipulating wood or leaves, climbing or walking, and flying from perch to perch, although these effects were not statistically significant.

Experiment 2

From table 1 and Table 2, the only significant behavioral effect was that chewing or carrying wood or leaves increased from baseline for the female bird (Sleek, Wilcoxon test, $W = 17$, $P = .03$). It was questionable however, whether the food-containing tree in it of itself generated an increase in tree material usage for Sleek, or if this was a treatment effect from the pine cone presented earlier. Although the total activity score for each animal did not change from baseline to when the food-containing object was added in the enclosure (Sleek, Wilcoxon test, $W = 2$, $P > .05$, n.s.; Tiny, $W = 27$, $P > .05$, n.s.), they correlated highly with one another at $r = .97$, $P = .005$.

Enrichment Opportunities for Young Lovebirds in Captivity, Continued

Table 1. Median number of minutes (min) or frequency (f) \pm SEM per 30-minute observation engaging in a naturalistic behavior during baseline and for each enrichment opportunity.

Behavior	Sleek				
	Baseline	Exp 1	Exp 2	Exp 3	Exp 4
Beak fence or fight (f)	0 ± 0.49	3* ± 1.16	0 ± 1.36	1 ± 0.51	1 ± 0.49
Chew or carry wood/leaves (min)	1.43 ± 0.97	8.42** ± 1.39	8.75* ± 1.49	3.32 ± 1.15	10.00 ± 2.67
Climb or walk (min)	3.15 ± 0.87	3.82 ± 0.72	2.38 ± 1.24	5.62 ± 0.83	3.97 ± 0.57
Eat (min)	9.18 ± 2.00	5.74 ± 1.69	3.90 ± 1.38	3.75 ± 1.92	4.78 ± 1.75
Fly between perches (f)	22 ± 4.09	19 ± 6.32	26 ± 10.06	83** ± 5.51	45** ± 6.07
Preen or groom (min)	0.60 ± 0.45	0.92 ± 0.97	0.62 ± 1.45	0.62 ± 0.78	1.55 ± 0.82
Wing display or wing stretch (f)	1 ± 1.10	2 ± 1.40	2 ± 0.66	1 ± 1.60	2 ± 0.86

* Denotes that a behavioral score was significantly different from baseline at $P < .05$.

** Denotes that a behavioral score was significantly different from baseline at $P < .01$.

Experiment 3

The most striking behavioral change from activating the garden waterfall was that there was a substantial increase in the number of perch-to-perch flights (Sleek, Wilcoxon test, $W = 15$, $P = .008$; Tiny, $W = 20.5$, $P > .05$, n.s.). The female bird spent less time eating when the running water was activated, the male bird displayed an increase in preening. Climbing or walking, another measure of locomotory or investigatory activity, increased from baseline for both birds, but these effects did not reach statistical significance. There was no strong evidence for early habituation because flying peaked on the last two days of this experiment.

Enrichment Opportunities for Young Lovebirds in Captivity, Continued

Experiment 4

Only the female bird engaged in manipulating the climbing rope after they both virtually ignored the novel enrichment object upon introduction. On Day 2 and Day 3, Sleek gnawed on the noose of the rope for three seconds and surprisingly for 96 seconds on the last day of the experiment. She used the rope for support when manipulating a nearby branch, and then grasped the rope to rotate her body and climb around it while nipping the intertwined fiber.

Although flying counts remained high during this experiment, it did decrease somewhat since the waterfall was deactivated (Table 1 and Table 2). A significant increase in total activity in the female bird from baseline weeks occurred during the last two weeks of the study due to the initial stimulation from the waterfall. The significant increase in preening in the male bird during this last experiment could be explained by not having much else to do since he had no interest in manipulating the rope.

Table 2. Median number of minutes (min) or frequency (f) \pm SEM per 30-minute observation engaging in a naturalistic behavior during baseline and for each enrichment opportunity.

Behavior	Tiny				
	Baseline	Exp 1	Exp 2	Exp 3	Exp 4
Beak fence or fight (f)	3 \pm 0.49	2 \pm 0.49	2 \pm 0.75	1 \pm 0.60	2 \pm 0.40
Chew or carry wood/leaves (min)	1.62 \pm 1.04	4.27 \pm 1.20	0.95 \pm 0.41	0.63 \pm 0.21	1.18 \pm 1.50
Climb or walk (min)	1.92 \pm 1.17	3.69 \pm 0.87	2.42 \pm 0.70	5.98 \pm 1.05	3.46 \pm 0.38
Eat (min)	5.40 \pm 1.82	5.33 \pm 0.59	3.83 \pm 2.28	5.78 \pm 2.54	2.47 \pm 1.26
Fly between perches (f)	6 \pm 4.25	14 \pm 3.61	9 \pm 1.18	18 \pm 3.23	17 \pm 2.25
Preen or groom (min)	3.18 \pm 1.28	2.22 \pm 2.91	3.30 \pm 2.06	5.71 \pm 1.70	7.86* \pm 2.58
Wing display or wing stretch (f)	2 \pm 0.68	1 \pm 1.64	2 \pm 1.24	1 \pm 0.55	4 \pm 0.87

* Denotes that a behavioral score was significantly different from baseline at $P < .05$.

Enrichment Opportunities for Young Lovebirds in Captivity, Continued

Individual differences

Significant individual differences between Tiny and Sleek were evident throughout the study period. Tiny spent more time preening than did Sleek, an activity that functions for personal hygiene or to reaffirm monogamous pair bonds seen in birds when grooming one's mate (Wilcoxon test, $z = -3.62$, $P = .0003$). Sleek spent more time flying (locomotory or investigatory behavior, Wilcoxon test, $z = +4.20$, $P = .0000$), and engaging in chewing or carrying wood or leaves (appetitive or investigatory behavior, Wilcoxon test, $z = -4.02$, $P = .0001$) than did Tiny. Her total activity score was higher than that for the male bird throughout the study period as well (Wilcoxon test, $z = -4.10$, $P = .0000$).

Conclusion

Some of the environmental opportunities evaluated herein have the potential of acting as adequate enrichment for captive birds, namely a pine cone filled with bird feed, scattering food on tree branches, and the sight and sound of running water. The occupational ideas related to feeding offered the element of choice by creating a situation which allowed captive animals to work for food if they wished to do so when free food was supplied in their feeding bowls (Foster-Turley, 1982; Markowitz, 1982; Markowitz & Stevens, 1978). The results from this study demonstrated that as consistent with findings from other enrichment studies for laboratory primates (Bloomstrand et al., 1986; Champoux et al., 1987), zoo bears (Carlstead et al., 1991; Markowitz, 1982), zoo otters (Foster-Turley, 19982; Sequeira, 1993), and parrots (Brice, 1992), providing novel manipulatable stimuli in a stable captive environment can increase levels of certain normal species-typical behaviors.

Wild birds spend the greater majority of their time foraging for scattered food in sometimes harsh, unpredictable, and climatically variable environments (Owen, 1980; Watson & Livesey, 1981). Appetitive behavior was elicited by presenting a pine cone filled with food. As a result both animals foraged inside the device and the female bird spent more time manipulating deciduous branches. Experiment 1 demonstrated that young birds learned to increasingly investigate a novel and manipulatable food-containing object over time instead of immediately habituating towards it on subsequent days as shown in older bears (Carlstead, 1991) and aged Rhesus monkeys (Line et al., 1991). The foraging opportunities also increased tree material usage by the female bird throughout two weeks.

An interesting finding from this study was that the visual and auditory properties of running water was a strong stimulus in evoking a marked increase in flying, a measure of locomotory and investigatory activity. This discovery supported the second prediction that specific stimuli can reinforce specific behaviors, namely food enrichment promoted foraging and running water stimulated enough excitement as to reinforce the instinct to fly in captive birds. These experiments have disclosed only a handful of environmental opportunities a caregiver could invent in a private home, research laboratory, or zoo. Acquiring new and creative uses for food and water can raise environmental complexity for birds and many other such animals with highly developed cognitive abilities that live under the constraints of captivity.

References

- Birchall, A. 1990. *Who's a clever parrot then?* New Scientist, Feb 24, 38-43
Blanchard, S. 1993. *Parrot psychology.* Bird Talk, Oct. '93, 22-24.
Bloomstrand, M. A. et al. 1986. *Objective evaluation of a behavioral enrichment device for captive chimpanzees (Pan troglodytes).* Zoo Biology, 5:293-300.
Boorer, M. K. 1972. *Some aspects of stereotyped patterns of movement exhibited by zoo animals.* Int. Zoo Yearbook, 12:164-168.
Brice, A.T. 1992. *Psittacine research project: parrot research in the lab and field.* AFA Watchbird, 18:6, 4-7.
Carlstead, K., Siedensticker, J. & Baldwin, R. 1991. *Environmental enrichment for zoo bears.* Zoo Biology, 10:1, 3-16.
Champoux, M., Hempel, M. and Reinhardt, V. 1987. *Environmental enrichment with sticks for singly-caged adult rhesus monkeys.* Laboratory Primate Newsletter, 26, 5-7.

Enrichment Opportunities for Young Lovebirds in Captivity, Continued

- Delsaut, M. & Roy, J. C. 1980. *The effects of recorded contact calls on the reinforcing value of self-viewing among lovebirds.* Behavioral and Neural Biology, 20:3, 341-344.
- Foster-Turley, P. A. 1982. *A captive behavioral enrichment study with Asian small clawed otters (Aonyx cinerea).* Master's thesis, San Francisco State University, San Francisco, CA.
- Hediger, H. 1964. *Wild Animals in Captivity.* New York: Dover Publications, Inc.
- Hediger, H. 1968. *The Psychology and Behavior of Animals in Zoos and Circuses.* New York: Dover Publications, Inc.
- Keiper, R. R. 1969. *Causal factors of stereotypies in caged birds.* Animal Behaviour, 17, 114-119.
- King, C. E. 1993. *Parrot well-being - does it deserve more attention?* Animal Keepers' Forum, 20:6, 20-222.
- Linqs) S. W., Morgan, K. N., and Markowitz, H. 1991. *Simple toys do not alter the behavior of aged rhesus monkeys.* Zoo Biology, 10, 473-484.
- Markowitz, H. 1982. *Behavioral Enrichment in the Zoo.* New York: Van Nostrand Rheinhold.
- Owen, K. 1980. *Feeding Strategy.* Oxford University Press.
- Preiss, H. J. & Franck, D. 1974. *Behavioral development of rosy-faced lovebirds (Agapornis roseicollis) hand-reared in isolation.* Zeitschrift-für-Tierpsychologie, 34:5, 459-463.
- Reinhardt, V. 1989. *Behavioral responses of unrelated adult male rhesus monkeys familiarized and paired for the purpose of environmental enrichment.* American Journal of Primatology, 17, 243-248.
- Sequeira, G. 1993. *Evaluation of enrichment devices for captive north American river otters (Lutra canadensis).* Animal Keepers' Forum, 20:10, 359-363.
- Watson, J. S. & Livesey, P. J. 1981. *Resistance to extinction in two races of the parrot Barnardius zonarius.* Australian Journal of Psychology, 33:2, 243-246.

VICTORY FOR THE WHALES - Antarctic Sanctuary Established by IWC



On 27 May 1994, the International Fund for Animal Welfare (IFAW) hailed the decision by the International Whaling Commission (IWC) to declare all Antarctic waters a sanctuary where all whales will be protected indefinitely as a great victory for wildlife.

By a decisive vote the nations present at the IWC meeting in Puerto Vallarta, Mexico, created a circumpolar sanctuary protecting the feeding grounds of 90 per cent of the world's great whales.

Only Japan voted against the sanctuary, with Norway refusing to take part in the process, claiming the procedure was not in accordance with the IWC's original charter. Six other countries abstained - China, Dominica, Grenada, Korea, St. Vincent and Grenadines, and the Solomon Islands. A total of 23 countries voted in favour, including the UK, USA, Germany, Holland, France, Australia and Ireland.

Japan and Norway, which fought to stop the sanctuary were humiliatingly defeated, failing to win the support of any major nation. The sanctuary is a fatal blow to the Tokyo-Oslo axis in its bid to restart commercial whaling, which has been banned since 1982.

Dr. Sidney Holt, scientific adviser to IFAW, which campaigned long and vigorously for the sanctuary, said: "The vote is the most important decision made by the IWC since the moratorium in commercial whaling was declared. It means the long Antarctic nightmare is over as far as the great whales are concerned."

In conjunction with the continuing moratorium, the sanctuary provides long-term protection for populations of seven species of great whales including, importantly, minke whales. The Southern Ocean minke whale population is the last remaining abundant population of great whales. *Continued on Page 260*

Chapter News

Burnet Park Zoo AAZK Chapter

The Burnet Park Zoo Chapter is alive and growing! Recent fundraising efforts include selling wildlife notecards and our own limited-edition T-shirts with boas and snow leopards pictured; raffles and blow-darting competitions and other activities in conjunction with zoo events.

Money raised will help to send some of our keepers to the 1994 National Conference in Omaha. We also held our Bowling for Rhinos event last month.

We've had two guest speakers: Zoo Director Anne Baker gave a lively introduction to all the initialized groups involved in zoo management (SSP, TAG, AZA, etc.); Glen Johnson gave a slide presentation on his field research on the endangered Massasauga rattlesnake. Our Chapter has awarded Glen a \$500.00 research grant for several years.

We've also bought a new camcorder for keeper use in behavior watches, births and programming. Finally, we changed our meeting times to an hour before our monthly zoo Docents' meeting to encourage participation in both organizations by docents and keepers.

--Charlotte Tagtmeyer, Sec'y

South Florida Chapter (Miami, FL)

Officers for 1994 are:

President.....Katrina Donnelly
Vice President.....Chris Breder
Secretary.....Pam Monseur
Treasurer.....Kathy Hitchcock

We had our first fundraiser in May -- a "Behind-the-Scenes Tour" raffle in which we raised close to \$500.00. We plan to hold our Bowling for Rhinos event this month. We are also planning a Wildlife Arts and Crafts festival in October and a banquet for the end of the year.

--Pam Monseur, Secretary

Greater Baltimore Chapter AAZK

The new officers for 1994 are:

Co-Presidents.....Steve Sarro and Joanne Shaffer
Treasurer.....Janine Dunbabin
Secretary.....Chris Bartos
Liaison.....Geoff Hall

This has been a productive first half of the year for our Chapter. We are all very excited about our new logo (see insert below). It was designed by Rick Strittmater of the Baltimore Zoo. We wanted it to reflect our commitment to the local wildlife as well as the unique habitats found in and around the Chesapeake Bay. We want to thank Rick for his work.



We had the logo printed on T-Shirts for the members - which turned out great! Extra T-Shirts were sold at our booth at the Zoo on Conservation Day. We set up our annual table presenting the things our Chapter is involved in, as well as the contributions keepers make every day to conservation. Our photos, handouts and artifacts were well received.

Our parking meters have been steadily raising money for the Bali Mynah Foundation, Chesapeake Bay Foundation and Rhinos (our recent collection went to Ngare Sergoi Support Group). Regrettfully our harsh winter took its toll and the meters had to be brought in for refurbishing. They should be back out soon, along with our fourth meter which will help the zoo in its ongoing efforts to save the endangered Lion-tailed macaque.

Chapter News, Continued

Our Chapter recently was co-sponsor with the Zoo's Education Department in featuring a lecture by Howard Quigly about Siberian Tigers. We also continue to raise funds by selling Rainforest Crunch™ at the Zoo Gift Shop and sponsor educational programs and conferences for our members. We hope the rest of the year continues to see us do as well!

--Chris Bartos, Secretary

Greater Houston AAZK Chapter

The members of the GHCAAZK are pleased to report the outstanding success of their first **Lone Star Keepers Symposium**. A total of 146 eager keepers, docents, volunteers, educators and zoo professionals traveled from 14 Texas zoological institutions to participate.

Paper sessions covered such interesting topics as hand-raising Siamang, quarantine procedures & facilities, parasites, zoo horticulture, Fennec foxes, and offered a variety of philosophies from Texas zoos. Workshops were held on enrichment, target training and studbooks.

Evenings provided the busy delegates with their own enrichment - great food, a sensational band and some good old Houston hospitality at two of our local pubs. Old friendships were renewed and many new friendships were made.

These recreational activities would not have been possible without the extensive support we had from our Zoo Docents, Zoological Society Guild and the Houston Zoological Society. They have our eternal gratitude for the delicious breakfasts, snacks, lunches and dinners that they provided.

The weekend conference concluded with a Behind-the-Scenes tour of the Houston Zoo and a post-symposium jaunt to the Attwater's Prairie Chicken Refuge.

We feel that the goals of the symposium - to stimulate fraternity, education and communications among Texas Zoos - were met and hope it will become an annual tradition with other Texas zoos hosting future conferences.

--Felicia Hill, Chapter Liaison

Dallas Zoo AAZK Chapter

Our fourth annual Bowling for Rhinos event was held at Don Carter's All-Star Lanes on 3 May. It was another fun and exciting fundraiser for our Chapter as we raised over \$3800.00 total. This also includes \$650.00 raised at our first BFR Silent Auction. Some of the items up for bid were a Rhino Bowling Ball™, a Dinner-for-Two Gift Certificate, a family membership from the Zoological Society, a Dallas Stars autographed hockey puck, and many wonderful art works.

Of the 27 bowlers, Rich Buickerood, Director of the Dallas Zoo, was the top scorer with 531 pts. over three games. The top sponsor money collector was Michelle Whitehouse who brought in \$590.00. Special thanks to silent auction donors including Rel, Whole Earth Provision Co., Chuy's Restaurant, Bowling and Billiards Supply of Dallas, and Whole Foods Market.

--Kevin Lew, Chapter Liaison

Philadelphia AAZK Chapter

The Philadelphia AAZK Chapter announces the following new officers for 1994:

Co-Presidents.....Teri Maas and Todd Sinander
Vice President.....Maggie Liquori
Treasurer.....Leslie Mitchell
Secretary.....Susie Gurey
Chapter Liaison.....Sandra Robbins



THE GOURMET RODENT™



VISA MasterCard

RATS AND MICE

Bill & Marcia Brant
6115 SW 137th Avenue
Archer, FL 32618
(904) 495-9024
FAX (904) 495-9781
© All Rights Reserved

Institutions wishing to advertise employment opportunities are asked to send pertinent data by the 15th of each month to: Opportunity Knocks/AKK, 635 Gage Blvd., Topeka, KS 66606. Please include closing dates for positions available. There is no charge for this service and phone-in listings of positions which become available close to deadline are accepted. Our phone is 1-800-242-4519 (U.S.); 1-800-468-1966 (Canada). Our FAX is 913-273-1980.

ELEPHANT/PRIMATE KEEPER (Phoenix Zoo)...responsible for safety, health and well being of collection through routine cleaning and maintenance of enclosures, feeding, observation and handling. Elephant experience required, either full or protected contact. Four-year college degree in life science or related course work plus two (2) years relevant experience OR a high school diploma plus six (6) years relevant experience. Salary range \$17,000 - \$18,500. Submit resumé and cover letter by **29 July 1994** to: Human Resources Coordinator, The Phoenix Zoo, 455 N. Galvin Parkway, Phoenix, AZ 85008-3134.

ZOOKEEPER...we are accepting resumés for a full-time keeper position in a 7.5 acre zoo which has 230 specimens comprising 92 species. A related degree or equivalent related experience preferred. Daily duties include care, feeding, habitat maintenance, and some construction. Must be willing to work weekends/holidays. Starting pay is \$5.00/hr. with significant yearly increases for the qualified candidate. Health insurance and additional benefits also included. Send resumé and references to: Tracy Divis, Heritage Zoo, 2103 W. Stolley Park Road, Grand Island, NE 68801.

GENERAL CURATOR...City of Atascadero Charles Paddock Zoo (Salary \$2614 - \$3178/mo; mid-mgmt. benefits). Under limited supervision of Director of Community Services, in a hands-on supervisor responsible for planning, directing, and coordinating operations and maintenance activities and the care and procurement of zoo animals. Completion of a four-year college curriculum in zoology, biology or closely related field and three years of experience in the care of exotic animals and the maintenance of zoo facilities and grounds, including two years in a supervisory capacity. **Apply by Friday, 29 July 1994, 5:00 p.m.** (No postmarks accepted). City application and resumé required. For job flyer and application, contact: City of Atascadero, Information Office, 6500 Palma Ave., Atascadero, CA 93422 or call (805) 461-5013. EOE.

ZOO KEEPER...we are looking for a team player who wants to grow professionally. The candidate must have paid zoo experience. Duties include the daily care of approximately 100 species of mammals, birds and reptiles, as well as presentation of various animals in an educational show. Experience with raptors and parrots desirable. Salary in the range of \$17,000-\$19,000, with benefits. Send resume to: Vince Hall, Claws 'n Paws Wild Animal Park, RD 6, Lake Ariel, PA 18436. Position open until filled.

The following two (2) positions are available at the Philadelphia Zoo. For either position send resumé and cover letter to: **Human Resources, Philadelphia Zoo, 3400 West Girard Ave., Philadelphia, PA 19104.**

ANIMAL KEEPER...requires high school or equivalent and two years' experience or a degree and one year of experience with captive exotics and strong written and oral communication skills. This is an open relief position assigned to areas as needed. Responsible for care, feeding, health/safety of animals; exhibit maintenance; behavior observation; interaction with the public.

VETERINARY/LAB TECHNICIAN...requires a degree from an accredited veterinary technician or medical technician program and a minimum of one year of experience in the animal health field. Experience in microbiology, parasitology, avian/reptilian hematology and demonstrable interest in exotic animals is preferred. AHT certification from the Commonwealth of Pennsylvania is desired. Part-time position currently available. Full-time position anticipated in Fall 1994.

Opportunity Knocks, Continued

The following two (2) positions are available with the Santa Barbara Zoological Society, 500 Ninos Dr., Santa Barbara, CA 93103.

VETERINARY TECHNICIAN...requires degree in veterinary technology from a AVMA accredited school; experience in exotic animal handling and care; computer and record keeping skills desired. Must obtain a veterinary technician license in California. Send resumé to: Tom Overskei, D.V.M. at address listed above.

ANIMAL KEEPER...requires high school diploma and preferably a BS degree in a related field as well as volunteer or paid zookeeping experience. Relief position will work in assigned areas. Responsible for feeding, health/maintenance, exhibit care, behavioral observation and interpersonal relations with the public. Available mid-September 1994. Includes benefits. Send resumé to: Julia Parker, Animal Care Supervisor at the address above.

ZOOKEEPER/CHILDREN's ZOO...collection includes nursery, barnyard animals, and small carnivores and primates. Must work weekends/holidays. Physically demanding. Minimum wage to start, post probationary period (90 days) wage dependent on experience and training; good benefits. Opportunity for qualified individual to design and implement an environmental enrichment program for varied collection of 2,000 animals. Enjoy the sun, the surf and the culture of Mexico. Send resumé to: Michelle Willette-Frahm, DVM, Gladys Porter Zoo, 500 Ringgold St., Brownsville, TX 78520. Position open until filled.

BIRD KEEPER (2 Positions available)... Must be experienced, effective, aviculturally ambitious, literate, entirely dependable and team-oriented. This is a rare opportunity to get in on the ground floor of the reorganized, newly privatized and developing Tracy Aviary. Salary starts at \$17,000.00. Send resumé to: D. Grenville Roles, Curator, Tracy Aviary, 589 East 1300 South, Salt Lake City, UT 84105. Position open until filled.

Victory for Whales (Continued from Page 256)



Dr. Holt explained: "Japan has been hoping that it would be allowed an annual catch of a couple of thousand minke whales under the IWC's revised management procedure for calculating catch quotas. Japan is presently killing several hundred minke whales in the Southern Ocean each year as 'scientific samples'. The meat from these animals almost invariably ends up being sold on the domestic market in Japan, but the whale sanctuary would remove any justification for this catch."

News of the victory came during a series of meetings in which the Russian delegation candidly revealed their discovery that during the 1960s and 1970s, Soviet whalers ruthlessly killed thousands of blue whales and other supposedly protected species in the Antarctic. This was despite the presence of Japanese international observers on their ships in the later years.

IFAW Executive Director Richard Moore said: "This is a great day for the whales. We have campaigned long and hard along with other organizations to see this sanctuary achieved and we are certainly going to celebrate. It is one of the most significant victories ever for wildlife. In this century we have seen whales virtually wiped off the face of the planet, no the next century holds hope for their continued survival as the world's greatest mammal."

The anti-hunting lobby says it owes much of its success to the Irish government, because their delegation fought off calls for a compromise, which would have led to a far smaller sanctuary.

>from *GreenDisk April/May 1994, Vol. 2, No. 6*



AAZK Membership Application

Name _____ check here if renewal []

Address _____

City _____ State/Province _____ Zip _____

U.S. Members

- \$30.00 Professional/U.S.
Full-time Keepers
- \$25.00 Affiliate/U.S.
Other staff & volunteers
- \$25.00 Associate/U.S.
*Those not connected with
an animal facility*
- \$50.00 or up Contributing/U.S.
Individuals
- \$50.00 or up Institutional/U.S.
*Organizations / Institutions
(requires Board approval)*

Canadian Members

- \$35.00 Professional/Canada
Full-time Keepers
- \$30.00 Affiliate/Canada
Other staff & volunteers
- \$30.00 Associate/Canada
*Those not connected with
an animal facility*
- \$55.00 or up Contributing/Canada
Individuals
- \$55.00 or up Institutional/Canada
*Organizations / Institutions
(requires Board approval)*

International Members

- \$40.00 International
*All members outside U.S. &
Canada regardless of category*

Library Only

- \$20.00 Library
*Available only to
established libraries*

Zoo Affiliation (if any) _____

Zoo Address _____

Title _____

Work Area _____

My check is enclosed (AAZK, Inc.)

Please charge to my credit card

MASTERCARD _____ VISA _____

Card # _____ - _____ - _____ - _____

Name on card _____ Expiration Date _____

Signature _____

Mail this application to : AAZK Administrative Offices, Topeka Zoo, 635 S.W. Gage Blvd., Topeka, KS 66606-2066 U.S.A. Make checks/money orders payable to AAZK, Inc. Must be in U.S. FUNDS ONLY.

Membership includes a subscription to Animal Keepers' Forum. The membership card is good for free admission to many zoos and aquariums in the U.S. and Canada.



of Zoo Keepers, Inc.
635 S.W. Gage Blvd.
Topeka, KS 66606-2066

Address Correction Requested

National Zoological Park
NZP Library
Washington , DC 20008
3/95

NON-PROFIT ORGANIZATION
U.S. POSTAGE
PAID
PERMIT #646
TOPEKA, KS 66603

L
6
598

Animal Keepers' Forum

August 1994



Dedicated to Professional Animal Care

ANIMAL KEEPERS' FORUM, 635 S.W. Gage Blvd., Topeka, KS 66606
Phone: 1-800-242-4519 (U.S.) 1-800-468-1966 (Canada) FAX 913-273-1980

Managing Editor: Susan Chan

August 1994

Associate Editors/Enrichment Options Coordinators:

Volume Twenty-one

Kayla Grams, Topeka Zoo & Gretchen Ziegler, Wildlife Safari Park

Number Eight

Book Review Coordinators: Melba T. Brown, National Zoo and Tom Aversa, Franklin Park Zoo

Legislative Outlook Column Coordinator: Phyl Nilson Wojcik, John Ball Zoo

Animal Keepers' Forum (ISSN 0164-9531) is a monthly journal of the American Association of Zoo Keepers, Inc. Ten dollars of each membership fee goes toward the annual publication costs of ***Animal Keepers' Forum***. Third Class postage paid at Topeka, KS. Postmaster: Please send address changes to:

American Association of Zoo Keepers, Inc.

Administrative Offices, 635 S.W. Gage Blvd., Topeka, KS 66606-2066

Barbara Manspeaker, Administrative Secretary

Acting Executive Director: Ed Hansen, AAZK, Inc.

BOARD OF DIRECTORS

Janet McCoy, Metro Washington Park Zoo, Portland, OR 97221-2799

President

Rachél Rogers, San Diego Zoo, San Diego, CA 92112

Vice President

Mark de Denus, Assiniboine Park Zoo, Winnipeg, Manitoba, Canada

Alan Baker, Burnet Park Zoo, Syracuse, NY 13204-2504

Ric Urban, Houston Zoological Garden, Houston, TX 77030

COMMITTEES

Nominations & Elections

By-laws

Chair - Vacancy

Chair - Vacancy

Conservation, Preservation & Restoration

Ethics

Chair - Brett Sellers, Metro Washington Park Zoo

Chair - Rachél Watkins Rogers, San Diego Zoo

Annual Conferences

Research/Grants

Coordinator - Ed Hansen, AAZK, Inc.

Chair - Susan Barnard, Zoo Atlanta

Awards

Publications Funding

Chair - Anna Michel, Metro Washington Park Zoo

David Luce, Chaffee Zoological of Fresno

Exhibit Design Resource Notebook

AAZK Chapter Logo Products

Michael Demlong, Phoenix Zoo

David Morrow, Wichita, KS

AAZK Inspection Standards Manual

Enrichment Committee

Rachél Watkins Rogers, San Diego Zoo

Chair currently being solicited

MEMBERSHIP SERVICES

L.I.N.K. Coordinator

Animal Data Transfer Form

Mark de Denus, Assiniboine Park Zoo

Bernie Feldman, Burnet Park Zoo

Zoo University List

Staff Exchange

Mike Illig, Metro Washington Park Zoo

Dale Frerking, Kansas City Zoo

Keeper Accommodations List

AAZK Historian

Todd Cleveland, Denver Zoo

Heidi Fowle, Discovery Island

International Affairs

Lesa Scheifele, Norwich, CT - Coordinator Foreign AAZK Members/Sister Organizations

Lois Johannes, L. A. Zoo - Coordinator Foreign Keeper Sponsorship Program

AAZK Training Materials

Laura Treschel, Continuing Education Coordinator, Minnesota Zoological Gardens

Christina Simmons, Keeper Training Package Coordinator, San Diego Zoo

PRESIDENTIAL ADVISORS

AZA Liaison

Elephant Managers Association

Ed Hansen, IPP, AAZK, Inc.

Ron Ringer, San Diego Zoo

Bowling for Rhinos

CAZPA Liaison

Patty Pearthree, Indianapolis Zoo

Tom Mantil, Metro Toronto Zoo

AAZK PUBLICATIONS : CONTINUING DATA COLLECTION

Zoo Infant Development Project - Harmony Frazier, Woodland Park Zoo (Mammals)

Teri Maas/Maggie Liguori, Philadelphia Zoo (Birds/Nonpasserines); Kim Livingstone, L.A. Zoo (Passerines)

Jeanne Boccongelli, Newark Museum Mini-Zoo (Reptiles); Linelle Lone, Denver Zoo (Amphibians)

Diet Notebook, Mammals, Vol. II - Susan Bunn Spencer, Grand Rapids, MI



Table of Contents

Scoops & Scuttlebutt.....	262 - 263
Coming Events.....	264 - 265
Message from their President/Envirotech (Circular Reasoning).....	266
Births & Hatchings/Black-footed Ferret Now on Exhibit in Six Zoos.....	267
Proposed Bylaw Change/Proxy Ballot.....	268
From the AAZK Board of Directors: Board Oversight (Mark de Denus).....	270 - 271
X-Ray Notecards Order Form.....	272
EFFIE: Death of a Mountain Gorilla.....	273
Book Reviews (Cormorants, Darters & Pelicans of the World/The World of the Sea Otter/and Introducing the Manatee).....	274 - 275
Enabling Orangutans to Forage on Exhibit.....	276 - 277
Scientists Find Second New Mammal in Vietnam/Information Please.....	278
Animal Buns Calendar Order Information.....	279 - 280
Legislative Outlook.....	281 - 282
A Comparison Between Fecundity Rates in Captive Hatched and Wild Collected Endangered Round Island Day Geckos at the Jersey Wildlife Preservation Trust, U.K.....	283 - 286
AAZK Announces New Professional/Contributing Members.....	286
Enrichment Options (Amazon Parrot).....	287
Chapter News.....	288
Beyond the Iron Bars: Part 2 - Keepers of the Former Soviet Union.....	289 - 293
The Adoption of Vinnie.....	295 - 296
L.I.N.K. List of Regional Coordinators.....	297
Opportunity Knock.....	298 - 300
Conference '94 (Regional Attractions/Day Rates/Hotel & Registration Forms).....	TAN INSERT

Information for Contributors

Animal Keepers' Forum publishes original papers and news items of interest to the animal keeping profession. Non-members are welcome to submit articles for consideration.

Articles should be typed or hand-printed and double-spaced. All illustrations, graphs, charts and tables should be clearly marked, in final form, and should fit in a page size no greater than 15cm x 25½cm (6" x 10"). Literature used should be cited in the text (Brown, 1986) and alphabetically in final bibliography. Avoid footnotes. Include scientific name of species (as per ISIS) the first time it is used. Thereafter use common name. Use metric system for weights and measurements (standard equivalents may be noted in parenthesis). Use the continental dating system (day-month-year). Times should be listed as per the 24-hour clock (0800, 1630 hrs. etc.). Black and white photos only are accepted. Color slides should be converted to black and white prints (minimum size 3" x 5") before submission. Clearly marked captions should accompany photos. Please list photo credit.

Articles sent to *Animal Keepers' Forum* will be reviewed by the editorial staff for publication. Articles of a research or technical nature will be submitted to one or more of the zoo professionals who serve as referees for *AKF*. No commitment is made to the author, but an effort will be made to publish articles as soon as possible. Lengthy articles may be separated into monthly installments at the discretion of the editor. The editor reserves the right to edit material without consultation unless approval is requested in writing by the author. Materials submitted will not be returned unless accompanied by a stamped, self-addressed envelope. Telephone or FAX contributions of late-breaking news or last-minute insertions are accepted as space allows. However, long articles must be sent by U.S. mail. Phone is (913) 272-5821 Ext. 31. FAX (913) 273-1980.

DEADLINE FOR EACH EDITION IS THE 15TH OF THE PRECEDING MONTH

Articles printed do not necessarily reflect the opinions of the
Animal Keepers' Forum editorial staff or
the American Association of Zoo Keepers, Inc.
Publication does not indicate endorsement by the Association.

Items in this publication may be reprinted providing credit to this publication is given and a copy of the reprinted material is forwarded to the editor. Reprints of material appearing in this journal may be ordered from the editor. Back issues are available for \$2.00 each.

This month's cover features a White-throated capuchin (*Cebus capucinus*) drawn by Camille Dorian of Monkey Jungle, Orinda, CA. Like other South American monkeys, the Capuchin has a prehensile tail which it uses as a fifth hand while climbing in the treetops of its tropical forest home. Capuchins live in groups of from 3-40 animals, each group occupying a definite range. It is strictly arboreal, rarely descending to the ground. Its diet is varied and includes fruits, nuts, leaves, insects, butterflies, larvae, spiders and occasionally bird eggs. The young, born singly after a gestation period of six months, spends its early weeks clinging to the mother's fur but is fairly independent by age six months. Thanks, Camille!

Scoops and Scuttlebutt

AAZK Bylaws Committee Positions Available

Due to the recent resignation of Ed Hansen to fulfill the duties of AAZK Acting Executive Director, and Jacqueline Peeler being unable to fulfill her duties as a Committee member, two vacancies have been created. AAZK is currently seeking replacements for the positions of CHAIR and one Committee Member for the Bylaws Committee.

The duties of the CHAIR include coordination of the Committee reports at mid-year and annual meetings of the Board, recommendations for changes in the Bylaws to the Board of Directors for presentation to the membership for ratification, and reporting of the activities or correspondence to the Board Overseer. Excellent communication skills are a must, computer literacy is helpful (not required) and AAZK Professional membership 'in good standing' is required.

The duties of Committee Member include working on the text for changes in the AAZK Bylaws with the guidance of the CHAIR and Board Overseer. Good reporting skills are necessary and computer literacy is helpful (not required). AAZK Professional membership 'in good standing' is necessary.

If you are interested in any of the above positions, please send your resumé and a letter of interest to the Board Overseer, Rachél Watkins Rogers c/o San Diego Zoo/Mammal Dept., P.O. Box 551, San Diego, CA 92112-0551 or FAX (619) 232-4117.

Bowling for Rhinos Update

We are well underway in our fundraising efforts for 1994. If your Chapter or institution participated in this year's fundraiser, please send in the money as early as possible. Remember, in order to be eligible to win the trip to Ngare Sergoi, your money must be sent in to me by 1 Sept. 1994. If you are having any problems with meeting this deadline, please contact me ASAP and I will help in any way possible. If your Chapter is waiting on a few straggler checks, please send the majority now and I will add on the remaining few to the totals later. It is extremely important to send all of the money collected for BFR by year's end as failure to do so could jeopardize AAZK non-profit status.

For additional information on holding your own BFR Bowl-a-thon or any other information, please write: Patty Pearthree, c/o Bowling for Rhinos, P.O. Box 199026, Indianapolis, IN 46219-9026 or call (317) 322-8723.

After your BFR event, please send checks made out to "AAZK, Inc. - Bowling for Rhinos", a financial statement (a blank one will be sent to you at your request or they can be found in your information packet), and a copy of all sponsor sheets to the above address. If your Chapter made T-shirts, buttons, posters, etc., please send a sample or photo to the AAZK Administrative Office.

Scoops & Scuttlebutt, Continued

Pikes Peak Region Chapter Donation Acknowledged

The AAZK Board of Directors and the staff of Administrative Offices wish to thank the members of the Pikes Peak Region Chapter, Cheyenne Mountain Zoo, Colorado Springs, CO for their donation of \$50.00 to the Association's general operating fund. The donation represents the approximate cost of a replacement toner cartridge for the AO photocopy machine. Such donations from AAZK Chapters help fund the operating costs of your Association and keep it financially on sound footing. Thanks, Pikes Peak Region Chapter!

Animal Data Transfer Forms - Comments, Concerns

If anyone is experiencing problems with their shipment of ADT Forms in the mail such as receiving damaged forms, please contact: Bernie Feldman, Burnet Park Zoo, 1 Conservation Place., Syracuse, NY 13204. Any further comments are always welcome.

Management Guidelines for Tapirs Published

The Federation of Zoological Gardens of Great Britain and Ireland has recently published the fourth in a series of *Management Guidelines for the Welfare of Zoo Animals*. The latest is *Tapir Management Guidelines*. For further information, please contact: The Federation of Zoological Gardens, Zoological Gardens-Regent's Park, London NW1 4RY, England; Tel. 071-586-0230 and FAX 071-722-4427.

PBS Stations to Air "Forgotten Apes"

Many PBS stations around the country will be airing the documentary "Forgotten Apes" beginning this month. The program details the histories of numerous primates from the wild to the pet or lab trade, offering viewers a unique insight into the lives of these exploited animals. Narrated by Jack Hanna, Director Emeritus of the Columbus Zoo, this hour-long program features Jane Goodall, the International Primate Protection League, and Primarily Primates, Inc., among others. Not all PBS stations have acquired this program, produced by Wildsight Productions, so you may wish to contact your local affiliate to see if it is scheduled in your area.

Enrichment Workshop Scheduled During Omaha Conference

During the AAZK National Conference in Omaha, there will be an Enrichment Workshop. The date and time will be announced. The workshop will be led by Dianna Frisch of the Columbus Zoo. Dianna would like to invite all interested Conference attendees to participate in this workshop by bringing enrichment videos, slides, devices, drawings and ideas to share with your colleagues.

Since an AAZK Enrichment Committee has been organized and is in the process of its developmental stages, your input is essential. There will be a discussion of this new committee and its objectives and Committee members will be introduced at the workshop. We need your input to make this a working committee. If you have any questions, please contact: Dianna Frisch, Columbus Zoo, P.O. Box 400, 9990 Riverside Dr., Columbus, OH 43065-0400; phone: (614) 645-3400.



Coming Events

14th Annual Conference of the Association of Zoo Veterinary Technicians

September 25-29, 1994

Cleveland, OH

Held at the Cleveland Metro Parks Zoo. If you would like more information, please contact Rhonda Kesak, Cleveland Metro Parks Zoo, 3900 Brookside Park Drive, Cleveland, OH 44109; (216) 661-6500, ext. 259.

Association of Avian Veterinarians

Sept. 27 - Oct. 1, 1994

Reno, NV

Conference site is the Nugget Hotel. The program will offer a wide variety of continuing education opportunities with concurrent programming to satisfy a broad range of interests. A Core Seminar, Basic Avian Medicine Symposium, Main Conference, and Practical Labs will be included. For further information contact the AAV Conference Office, 2121 So. Oneida St., Ste. 325, Denver, CO 80224-2552, (303) 756-8380, FAX (303) 759-8861.

15th Annual Conference of the Elephant Managers Association

Sept. 29 - Oct. 1, 1994

Toronto, Canada

Hosted by the Metro Toronto Zoo and to be held at the Guild Inn. Registration is \$89.00 (Canadian Funds). For further information contact: John Stoner, Animal Care Manager, Metro Toronto Zoo, P.O. Box 280, West Hill, Ontario, Canada M1E 4R5, Tel: (416) 392-5965,

1994 AAZK National Conference

Oct. 9-13, 1994

Omaha, NE

Hosted by the Omaha Chapter of AAZK. Conference will include paper sessions, poster presentations, workshops, Zoolympics, a day at the Henry Doorly Zoo, and several social functions. Watch for information and registration forms in the tan inserts in AKF. Or for further information contact Diane Callaway or Lisa Cuevas at the Henry Doorly Zoo.

Small Felid Workshop

Oct. 13-16, 1994

San Diego, CA

Dr. Jill Mellen, Susan Millard and Pat Quillen will join with other specialists in presenting a small cat workshop to be held at the facility of SOS CARE (near the San Diego Wild Animal Park), which presently houses 50 plus small cats of varied species and sub-species. Early enrollment is encouraged as attendance will be limited for the benefit of the animals and participants. For further information contact: Pat Quillen, SOS CARE, 15453 Woods Valley Rd., Valley Center, CA 92082. Phone: (619) 749-3946; FAX: 619-749-1324 or call Susan Millard at (619) 738-5085.

American Association of Zoo Veterinarians

October 23-27, 1994

Pittsburgh, PA

To be held at the Hyatt Regency Hotel. Workshops will take place on Sunday, 23 October. Conference will include sessions on reptiles and amphibians, nutrition, immobilization, avian species, primates, clinical and gross pathology, environmental enrichment, aquatic animal medicine, hoofstock and large mammals, carnivores and small mammals and

Coming Events. Continued

case reports. In addition there will be both a student and graduate student competition and a poster session. For more information contact: Wilbur Amand, VMD, AAZV Executive Director, Philadelphia Zoo, 3400 W. Girard Ave., Philadelphia, PA 19104-1196; phone (215) 387-9094; FAX (215) 387-2165.

Association of Reptilian and Amphibian Veterinarians (ARAV)

October 22-23, 1994

Pittsburgh, PA

To be held in conjunction with the AAZV Conference listed above. This is the first conference for the ARAV and will include a general lecture session, a case report session and workshops on (1) basic reptile and amphibian medicine; (2) advanced reptile and amphibian medicine; and (3) pathology/necropsy techniques. For further information and registration materials contact Wilbur Amand at address given under AAZV listing.

Third Annual National Watchable Wildlife Conference

October 26-29, 1994

Burlington, VA

Theme is "Take A Closer Look". Conference will include workshops, panel discussions and hands-on interactive sessions. Field trips for Vermont wildlife viewing included. For further information contact Hannah Kirchner or David Case at National Watchable Wildlife Conference, 607 Lincolnway West, Mishawaka, IN 46544 Tel: (219) 258-0100.

The Exploitation of Mammals

November 25-26, 1994

London, England

A symposium organized by The Mammal Society and Universities Federation for Animal Welfare. The major theme concerns the various ways in which mammal populations are exploited world-wide, the concept of sustainable use and the resulting welfare considerations for animals involved. Program includes sessions on Mammal Game Ranching, Mammal-oriented Ecotourism; Mammals in Zoos and Circuses; Sport Hunting of Mammals; and Mammal Wildlife Trade and Conservation. For further information contact Victoria Taylor at UFAW, 8 Hamilton Close, South Mimms, Potters Bar, Herts, England EN6 3QD.

10th International Conference on Bear Research & Management

July 16-20, 1995

Fairbanks, AK

Sept. 11-14, 1995

Mora, Sweden

Theme is "Bears - Their Biology and Management." For both sessions, persons desiring to present papers must submit summaries of their proposed presentations. Summaries are due by 30 September 1994 for Fairbanks and by 30 October 1994 for Swedish-Norwegian sessions. For further information contact: Fairbanks - Harry Reynolds, 1300 College Rd., Fairbanks, AK 99701-1599, tel: (907) 452-1531, FAX: 907/452-6410; Sweden - Anders Bjärval, Naturvårdsverket, @-171 85 Solna, Sweden, tel: Int. code + 46 8 799 10 00, Telfax: Int. code + 46 8 799 14 02.



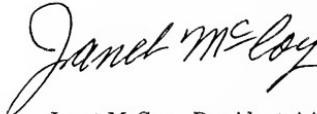
Message From the President.....

The National AAZK Conference will be held October 9 - 13 in Omaha, NE. Now is the time to channel your ideas and concerns to the AAZK Board of Directors. For any item to receive the complete attention from the Board, it must be filed in writing and submitted by 23 September 1994.

One topic for your consideration has been proposed by Geoff Underwood, President of the Australasian Society of Zoo Keepers, to have an international Zoo Keeping Conference. In principle it is a good idea, possibly it might be a specialty conference. We would invite them to our conference and possibly set up travel options. Concerns raised by the Board are travel expense, committee meetings and the annual meeting and a site for the conference. Another possibility would be a world zoo keeping organization conference (a summit meeting). The Board would like your ideas and comments on this proposal.

On Sunday, 9 October, we will again use the successful format that we have used the past two years. The State of the Association will provide reports on the business aspects of our Association and a review of the Animal Keepers' Forum. We will again have concurrent committee workshops that are open to the membership. We hope you participate in those committee sessions that interest you. The agenda will be posted at the conference.

Again, to insure that your ideas receive full consideration, please file all suggestions in writing by 23 September 1994 to: Janet McCoy, AAZK President, Metro Washington Park Zoo, 4001 S.W. Canyon Rd., Portland, OR 97221.



Janet McCoy, President AAZK, Inc.

ENVIROTECH Circular Reasoning



Full-circle recycling - a closed-circuit link between businesses that trade waste material and products made from that waste - seems to be gaining popularity. In Burlington, VT, the Medical Center Hospital has worked out a full-circle relationship with the Intervale Foundation, a local organic farm. Last year Intervale supplied the hospital with 20,000 pounds of organically grown vegetables, picked fresh each morning and delivered in time for lunch. In exchange, the hospital is returning its kitchen waste to the farm for composting and use as organic fertilizer. In 1993 the hospital saved at last \$5,000 in landfill fees. Meanwhile, Intervale is looking to provide as much as 30,000 pounds of produce each year and in the process revitalize hospital food.

In another case, Stefan Watson, a maker of fine art papers in Albuquerque, NM, learned that the local Levi's plant was burying millions of pounds of denim scrap in a landfill. So he offered to make it into paper. Now the Levi Straus plant has entered into a full-circle agreement that provides Watson with 100,000 pounds of scrap per month. In return, the dungaree maker gets stationary, cardboard, shopping bags, even business cards - all the tell-tale color of faded blue jeans. A spokesman for the plant reckons it's cut its waste-hauling bill by a third, and Watson calculates that they saved 8,000 trees a year. *Audubon via Nature News, The Nature Book Society.*



Births & Hatchings



Miller Park Zoo (Bloomington, IL)...would like to report the following B&H for 1 Jan. through 1 July 1994:

Mammals - 4.2 Red wolves (*Canis rufus gregoryi*) [E/SSP - first for institution; 1.0 died at 5 days]; 0.0.5 Fat-tailed gerbil (*Pachyuromys duprasi*) [1st for institution].

Birds - 0.0.3 Hooded pitta (*Pitta sordida*) [1st for institution]; 0.0.3 White-rumped shama thrush (*Copsychus malabaricus*); 0.0.1 Yellow-breasted ground dove (*Gallicolumba tristigmata*) [1st for institution].

Amphibians - 0.0.4 Dart poison frog (*Dendrobates auratus*) [1st for institution, change in husbandry]. submitted by Jan Outlaw, Zookeeper, Miller Park Zoo, Bloomington, IL.

Kamloops Wildlife Park (Kamloops, BC, Canada)..announces the May 1994 hatching of 0.0.12 Burrowing owls (*Athene cunicularia*) [E]. submitted by Dawn Brodie, ANHT, Kamloops Wildlife Park.

Zoo Atlanta (Atlanta, GA)...announces the following B&H for Jan.-June 1994:

Mammals - 1.0 Drill (*Papio leucophaeus*) b. 7 May [E/CITES I]; 0.0.1 Western lowland gorilla (*Gorilla g. gorilla*) b. 8 Feb [E/CITES I/1st for pair].

Birds - 0.0.4 Emu (*Dromiceius novaehollandiae*) [1st for institution]; 0.0.2 Bald eagle (*Haliaeetus leucocephalus alascanus*) [CITES I/1st for institution/released in S. GA].

Reptiles - Aldabra tortoise (*Geochelone gigantea*) 0.0.2 DNS. submitted by Michelle R. Schireman, Chapter Liaison, Zoo Atlanta AAZK Chapter.



Endangered Black-footed Ferrets Now on Exhibit at Six Zoos

For the first time, the public can see the Black-footed ferret in six zoos. To coincide with the third release in Wyoming of 50 captive-bred ferrets, exhibits opened last fall at Henry Doorly Zoo (Omaha), Louisville Zoological Gardens, Metropolitan Toronto Zoo, Phoenix Zoo, National Zoological Park (Washington, DC), and Cheyenne Mountain Zoo (Colorado Springs).

Mustela nigripes has been called America's rarest mammal. In 1986, the 18 known remaining ferrets were captured and a breeding program set up by the USFWS and the Wyoming Game and Fish Dept. In 1993, four litters, totaling 12 kits, were born in the wild to animals released in 1991 and 1992. The recovery plan for this species according to USFWS biologist Ron Naten, "calls for ten separate free-ranging populations with a cumulative 1500 animals by 2010. Even that is only five to ten percent of what the black-footed ferret population once was."



Proposed By-Law Amendment -

Executive Director

Article VI, Section 1d. Executive Director

The Board of Directors may appoint and employ an Executive Director who shall serve at its discretion under special supervision of the President and Board of Directors, he/she shall be responsible for the day-to-day operation of the Association, providing material to committees, advisors, chapters and agents and for promoting and conducting the programs of the Association within the policy guidelines of the Board of Directors in accordance with the Charter and By-laws.

The Executive Director shall have the authority to employ personnel for the Association as provided for by the Board of Directors or its Officers and to terminate the employment of such personnel. He/she shall have full authority, as well as responsibility, to supervise the work of such personnel. He/she shall attend all meetings of the Board of Directors and its Officers, but shall not be entitled to vote. He/she may attend all meetings of By-laws, Standing, and Special Committees in an *ex officio* capacity without the right to vote.

The Executive Director shall be bonded in an amount set forth by the Officers, and the Association shall pay the cost of such bond.

PROXY

(Professional and Affiliate Members Only May Vote - Membership status will be verified at Administrative Offices)

The AAZK Board of Directors and the AAZK By-laws Committee recommend the adoption by the membership of the proposed revision to the By-laws of the Association. It will be voted on at the General Membership Meeting to be held at the Omaha Conference Oct. 9-13, 1994. If you will not be in attendance, you may return this proxy ballot to let your wishes be known.
CHOOSE ONE BELOW.

I, the undersigned, do hereby designate Jan McCoy, President, as my Proxy at the 1994 General Membership Meeting of AAZK. I wish my vote to be cast with the majority of members in attendance at the General Membership Meeting.

I, the undersigned, wish to vote against the By-law revision.

Name
(Please Print)

Address

Signature

Date

MAIL TO: PROXY BALLOT, AAZK Administrative Offices, 635 S.W. Gage Blvd., Topeka, KS 66606-2066. Ballots must be postmarked no later than 1 October 1994.



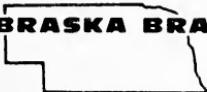
Quality exotic animal diets

SPECTRUM

**Nutritionally balanced
Fixed formulation • Economical**

When you need a complete line of high-quality dry and frozen animal diets for your feeding program, call Animal Spectrum.

NEBRASKA BRAND



Frozen feline diets

Frozen bird of prey diets

Frozen canine diet

*Chunk and chopped horsemeat,
hearts, livers, rib, shank,
knuckle bones, and tailbones*



Banana flavored psittacine/primate, 20% protein, dry
Banana flavored primate, Pro-Plus 25% protein dry
Leaf Eater primate dry **Omnivore dry**
Llama Vitamins & Minerals dry **Polar Bear dry**
Marmoset/Tamarin dry **Ratite dry**
Hoofstock supplement, with Selenium dry

BROOD-RITE HEATERS

*Bulbless heaters—nothing to break
Safe around all animals and
bedding material.
Even heat distribution in 240, 500,
or 750 wattages.*

One call does it all

**TOLL
FREE**

**TOLL
FREE** **1-800-228-4005**

FAX 308-534-7015

Animal Spectrum, Inc.

P.O. Box 721

North Platte NE 69101-0721

From the AAZK Board of Directors.....

AAZK Board Overseers: Who are they and what are their responsibilities?

This is the second in a series of monthly overviews of the responsibilities of each member of the AAZK Board of Directors. Each Board Member is assigned committees and/or projects to coordinate or oversee. The Board Overseer maintains communication with the Committee/Project Chair, advises them on the goals the Board would like to see accomplished, and encourages communication to the membership via AKF about the Committee/Project's progress. The Board Overseer also coordinates mid-year and annual reports to the Board for consideration of budget needs, appointees, resignations, and accounting of activities for report to the membership.

This month Mark de Denus, Assiniboine Park Zoo, will review his oversights. If you have any questions or suggestions for any of the committees, please contact either the Chair or appropriate Board member. Our Association is dependent on the collaborative efforts of our committees, chairs and membership.

Liaison and Information Network for Keepers (LINK)

Coordinator: Mark de Denus, Assiniboine Park Zoo

Assistant Coordinator: Ric Urban, Houston Zoological Gardens

Regional Coordinators: see listing in AKF

The intention of LINK is to act primarily as a direct communication network between AAZK Chapters and the parent organization, AAZK, Inc. It also serves to increase communication to the general membership by facilitating the needs of project or committee personnel. The network includes the cooperative efforts of the LINK Coordinator and Assistant, Regional Coordinators, Chapter and Institutional Liaisons, as well as Administrative Office staff and the AAZK, Inc. Board of Directors.

In overseeing AAZK Chapters, the LINK system monitors the activities of 74 chartered Chapters in the U.S. and Canada. This is done through direct communication with Chapter Officers and Liaisons. Formal semi-annual reporting periods occur before Mid-Year and Annual Meetings of AAZK, Inc. As well, a rechartering process occurs annually to ensure prompt and consistent attention is given to Chapter operation and function. A *LINK BULLETIN* is produced a minimum of twice a year to directly inform and instruct Chapters regarding responsibilities and requirements and, to provide updates on specific or pertinent areas.

The Regional Coordinator is an important 'link' in the network as they are the active representatives of AAZK, Inc. at the regional level. This position assists the organization in developing a connection between local members, Chapters, institutions and the National Association. There are 29 RCs currently facilitating the LINK network.

The LINK system will continue to develop and serve the needs of the membership and Association. Current objectives include strengthening the link between Chapters and National committees, improving the *LINK BULLETIN* and increasing its issuance to 4x a year, and encouraging more Chapter to Chapter exchange.

Publications

Exhibit Design Resource Notebook - Coordinator: Mike Demlong, Phoenix Zoo

The purpose of the Exhibit Design Resource Notebook project is to gather physical and maintenance information on existing animal exhibits in zoological facilities and compile this material into a resource notebook for general use.

From the AAZK Board - BOD Oversight, Continued

Over the past year, a fresh and revived approach has occurred with this project. Mike Demlong and his committee have reviewed the past materials and modified the project to the point where the data collection process is ready to begin. Advertisement and solicitation for this project will begin immediately through AKE, LINK BULLETIN and direct mail.

Zoo Infant Development Project (ZIDP) - Chairs: Harmony Frazier and Kathleen Hunt, Woodland Park Zoo; Coordinators (Birds): Teri Maas and Maggi Liquori, Philadelphia Zoo and Kim Livingstone (Passerines), San Diego Zoo; Reptiles/Amphibians: Jeanne Boccongelli, Newark Museum and Linelle Lone, Denver Zoo.

The purpose of this project is to collect information on parent-reared infants in captive collections. The information will be compiled in a notebook that can be used as a reference for the physical and behavioral development of normal parent-reared captive species.

The Mammal Volume will contain over 460 reports representing over 100 species. Weight data and bibliographies are also included. The expected publication date will be Fall of 1994. The project is being funded by the cooperative efforts of AAZK, Inc., the Puget Sound AAZK Chapter and a generous grant from the Center for Wildlife Conservation in Seattle.

Data collection is continuing with the Bird, Reptile and Amphibian volumes of this project.

Zoo Diet Notebook

Chair: Susan Bunn Spencer, John Ball Zoological Gardens

Coordinators (Mammals) : Debbie Hayman and Ted Strikwerda, Bowmanville Zoo; Coordinator (Birds): Kelly Westbrook, Little Rock Zoological Gardens

Coordinator (Reptiles): Vacant Coordinator (Fish): Brian Potvin (pending) Texas State Aquarium; Coordinator (Invertebrates): Susan Kenney, John G. Shedd Aquarium.

The purpose of the Zoo Diet Notebook is to compile extensive data on diets and nutritional analysis of food requirements for captive animal species from mammals to invertebrates. The publication Zoo Diet Notebook - Mammals Vol. I was published in 1988.

Currently the committees are working on completion of Mammals - Volume II and Birds - Vol. I. Data collection and proofreading are currently being pursued.

Historian

Heidi Fowle, Discovery Island

The Historian collects archival data on the chronological events of the American Association of Zoo Keepers, Inc. This includes an annual summary of activities, committees, projects and services, events, Board and Chapters which are meaningful to the history of the Association. The Historian acts as an advisor in matters of historical importance. In 1992, the AAZK History Book was published covering the first 25 years of the Association.

All relevant and important materials including reports and files, promotional items, etc. should be sent to Heidi for her file.

Ethics Committee

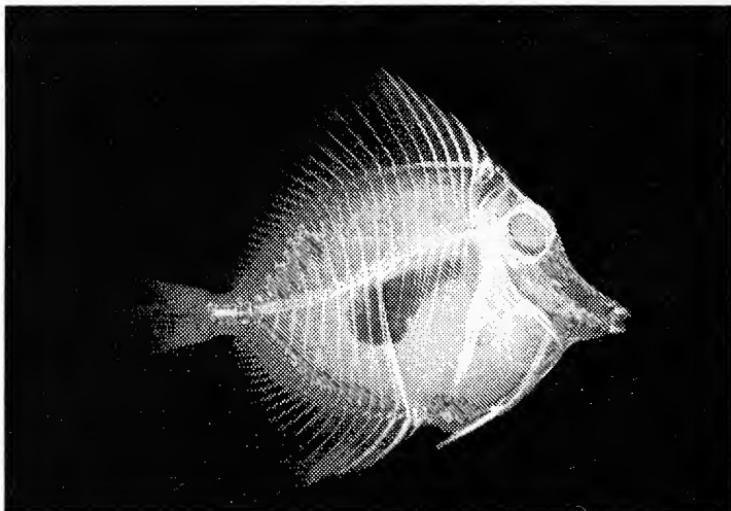
Chair: Rachél Watkins Rogers, San Diego Zoo

The AAZK, Inc. Board of Directors implemented this *Ad hoc* Committee in 1992 to deal with ethical issues concerning the membership. The purpose of the committee is to review and assess any ethical issue in consideration of an AAZK member's actions which may jeopardize the Association in any way. Committee members are chosen at random from the membership rolls and asked to serve for a two-year period. The Committee is activated only if a problem arises.



X-RAY NOTE CARDS

The Rocky Mountain AAZK Chapter, Denver, CO, is proud to offer specially produced animal X-ray notecards available for sale through our Chapter. These high quality black and white cards are printed on recycled paper and feature four designs of reproduced radiographs right from our hospital slides. Animals featured on the cards include: Yellow Tang (*Zebrasoma flavescens*) shown here, the Vampire Bat (*Desmodus rotundus*), the Tiger Salamander (*Ambystoma tigrinum*), and Chilean Flamingo (*Phoenicopterus chilensis*). The cards are sold in sets of 12 (three of each animal design) and promise to be a unique Chapter creation. Each box will be offered at \$10.00 each plus \$1.00 shipping and handling. This is a fundraiser to help support the 1995 AAZK National Conference to be held in Denver Sept. 24-28, 1995. Please use order form below, making checks or money orders payable to: Rocky Mtn. AAZK Conference Committee and send to the Chapter at the Denver Zoo, 2900 E. 23rd Ave., Denver, CO 80205.



Yellow Tang, *Zebrasoma flavescens*

 YES! I have enclosed \$ _____ for _____ boxes of notecards

Please mail to me at:

Name: _____

Address: _____

City, State, Zip: _____

EFFIE: Death of a Mountain Gorilla

Effie, a grand-matriarch Mountain gorilla (*Gorilla g. berengehi*), believed to be at least 40 years old, was recently found dead in the Rwandan rainforest. Effie was a member of Dr. Dian Fossey's famous study Group 5 and, until her death, was one of only three gorillas surviving from the era which began in 1967 when Fossey started work at the Karisoke Research Center. It is believed Effie died on 26 April, 1994; cause of death is unknown.

Rwandan trackers from the Karisoke Research Center, operated by the Dian Fossey Gorilla Fund, reported her death to H. Dieter Steklis, PhD, Fossey Fund Executive Director. "Effie presumably died of old age," said Steklis. "There may have been some precipitating event, like a cold, but certainly no evidence of foul play. I'll certainly miss her in my next visit to her group."

Perhaps a omen, Effie was reported missing from her group earlier this year. Pascale Sicotte, PhD, Director of the Karisoke Research Center, said "We had a false alarm in January and February when, for a few weeks, we did not see her." Trackers searched without success and then, one day, Effie reappeared unexpectedly. "She may have been sick and following the group very slowly. We were relieved when we saw her, but we knew she was old and we were expecting her death. I hope she died in peace."

Described by researchers as a self-assured gorilla with high status in an especially strong family group, Effie lived in Rwanda's Parc National des Volcans, the rainforest preserve for half the world's remaining 650 endangered Mountain gorillas. The balance of the Mountain gorilla population resides in the Impenetrable Forest in Uganda. While a bloody civil war rages in the cities and villages of Rwanda, resulting in the deaths of as many as 500,000 people and the exodus of millions more, conditions in the park are relatively calm. No gorilla injuries or deaths resulting from the war have been reported since the fighting began in April.

When Effie was first identified by Fossey in 1967, it is estimated that she was about 13 years old and had given birth to at least one infant. According to Karisoke records, Effie has had seven known offspring, all females, and another seven grandchildren, making her a very successful mother by gorilla standards.

Reached at Duke University, David Watts, PhD, Chairman of the Scientific Advisory Committee of the Dian Fossey Fund and former colleague of Fossey, said: "Effie was a wonderful mother and really put a lot into looking after her babies. Having all seven survive is doing extremely well." Because of her age, Effie holds a prominent place in gorilla research. Watts continued, "Gorillas live such a long time and are such complicated animals that for us to understand their lives and get a good picture of their behavior and social systems depends on having a long history on specific individuals. Knowing about 27 years of Effie's life is scientifically important."

In spite of the devastating civil war, the Fossey Fund's Karisoke Research Center is continuing its gorilla tracking and anti-poaching work. Rwandan staff who fled to Zaire



Effie and her daughter, Mehane.
Photo Dian Fossey Grilla Fund 1986

Effie: Death of a Mountain Gorilla, Continued

when war erupted have returned to camp and rejoined the Rwandan anti-poaching patrols and trackers who remained to monitor gorilla well being.

Director Sicotte returned to the area on 20 June and Steklis joined her in early July. They will set up temporary operations in Zaire and coordinate work with the Rwandan staff and park officials from both countries. Said Sicotte: "The amplitude of the war is horrifying. We can't predict how or when it will end or even when the situation will get better. In the meantime, we are working to preserve the Mountain gorillas and their habitat and undertaking the expenses of running the Parc National des Volcans. When the Rwandans get back on their feet, these natural resources will be available for tourism which is so important to Rwanda, economically speaking."

>News Release from The Dian Fossey Gorilla Fund, Engelwood, CO. Prepared by Denise Robert June 20, 1994



Book Review

Cormorants, Darters & Pelicans of the World

By Paul A. Johnsgard

Smithsonian Institution Press 1993

Washington & London

Hardback. 448 pgs. \$49.00

*Review by Richard C. Smith
Aviculturist
Sea World of Florida
Orlando, FL*

In the book Cormorants, Darters and Pelicans of the World, author Paul A. Johnsgard gives a complete documentation of all the available information on the title subject. Mr. Johnsgard uses the preface to justify the author's position on taxonomy. It also states that other families in the order Pelicaniformes have been omitted because of their peripheral relations. The body of the book is separated into a seven-chapter "Comparative Biology" section and an outstanding "Species Account" section. Following the book's body are three appendices that provide additional information on species identification. Throughout the entire book are excellent comparative tables and illustrations. In addition, the book has 51 color photographs.

The first part of the body begins with a chapter on Phylogeny, Taxonomy & Zoology. This chapter carefully analyzes the complete history of the subject's classification. Next, Mr. Johnsgard offers a comparative morphology and anatomy chapter. The next three chapters cover Feeding, Social and Reproductive Behaviors, respectively. Some excellent drawings accompany these behavior descriptions. Population Dynamics and Conservation Biology make up the "Comparative Biology" section. Each species account follows a similar pattern. Identification, distribution, descriptions, measurements (in metric), ecology, foods, behaviors, population status and taxonomy are all discussed as thoroughly as possible. Again, many excellent drawings and distribution maps are found for each species.

For the reasonable price and completeness, Cormorants, Darters and Pelicans of the World is an excellent resource for keepers and institutions. The behavioral descriptions and illustrations are superbly accurate. Certainly anyone who works with these birds will benefit from this fine resource.

Book Reviews, Continued

The World of the Sea Otter

Text by Stefani Paine; Photographs by Jeff Foott - 1993
Sierra Club Books, 100 Bush Street, San Francisco, CA 94104
Hardback 132 pgs. \$25.00

*Review by Bonnie L. Brown
Docent, National Zoo
Washington, DC*

The World of the Sea Otter is the successful collaboration of Stefani Paine, author and Vancouver Aquarium staff biologist; and Jeff Foott, former biologist and distinguished wildlife photographer.

Paine's authoritative but sensitive text is superbly complemented by over 60 of Jeff Foott's stunning full-color photographs. The text and photographs combine to capture the power and beauty of the coastal seas as well as the engaging manner and distinctive lifestyle of the sea otter.

The book is both a thorough natural history and a visual commemoration of the entrancing sea otter. The opening chapters provide a special look at the sea otter: playing, searching for food, and rearing its young. Later chapters examine this small sea mammal's relationship with humans from the fur hunts of the 1700's that nearly resulted in the sea otter's extinction, to the devastating 1989 Exxon Valdez tragedy, to recent efforts to protect and return the otters to their ancestral range.

The book concludes with a plea for a caring public to work to ensure the peace and increasingly prosperity of this fascinating creature.

Introducing the Manatee

By Warren Zeiller, 1992
University of Florida Press
15 Northwest 15th St., Gainesville, FL 32611
Hardback, 150 pgs.

*Review by Missy Betcher Lodge
Editor, H.O. R.N.
Ngare Sergoi Support Group, Inc.
Columbus, OH*

Zeiller, who spent 25 years at the Miami Seaquarium, has ostensibly written a book introducing the endangered Florida manatee and efforts to save the species. What he produces, however, is a text that reads like a Miami Seaquarium commercial. The book details the life of the original manatees that were placed under the care of the Seaquarium, making this not an introductory text but more of a scientific treatise on manatees in a captive situation.

A scientific focus is not in itself negative. However, what this book illustrates is the dichotomy between the conservation role zoos ought to play versus the reality which often occurs. For example, Zeiller writes about a manatee exhibit designed for visual pleasure but not typical of manatee habitat, and the death of captive manatees because of DDT spraying too close to their pools. He also mentions introducing manatees to areas outside their current range, such as Kenya and Sri Lanka. Aside from the need to limit or revamp motorboat propellers there is no discussion on saving manatees in their natural habitat.



Enabling Orangutans to Forage on Exhibit

By

Bruce Roberts, Great Ape Keeper
Little Rock Zoo, Little Rock, AR

The Little Rock Zoo has developed a program that provides a fairly lush environment. This allows the 1.3 Orangutans (0.2 Sumatran [*Pongo pygmaeus abelii*] and 1.1 hybrid) currently housed to forage and browse on a daily basis. A large variety of edible plants now occur in the exhibit. Some of these species have been planted by the staff or volunteers while others are indigenous species that are encouraged to grow.

The exhibit, opened in 1988, is roughly 13,000 square feet. It features a 70' stream ending in a pool approximately 700 square feet. Large, cut trees are bolted to I-beams to provide climbing structures. Fire hose has been laced between the trees for additional arboreal space.

There are four loblolly pines (*Pinus taeda*) approximately 30' tall on the east side of the exhibit. These are a major source of shade. These trees were hotwired three years ago because our young male realized throwing the branches to the public garnered him much attention.

The 50' post oak (*Quercus stellata*) in the middle of the yard is not hotwired. There has been very little damage to this tree. The Orangutans prefer to climb the structures as the first limb on this tree is 15' above the ground.

The exhibit was originally planted solely with zoysia (*Zoysia japonica*) sod. In a very short time indigenous plants started growing. The exhibit is now thick with these plants. Many species are eaten although the Orangutans do have favorites. Southern dewberry (*Rubus trivialis*) is the most harvested. The vines, flowers and especially the berries are readily eaten. The dewberry patch is approximately 30' by 6' and grows larger every year. Clover is browsed but the purple variety (*Petalostemum purpureum*) is preferred over the white variety (*Trifolium repens*). Smooth vetch (*Vicia dasycarpa*) grows rampant in season. The flowers and vines are eaten. The vines also make a preferred nesting material. Purple thistle (*Cirsium carolinianum*), English plantain (*Plantago lanceolata*), prairie dock (*Silphium terebinthinaceum*) and pepper vine (*Ampelopsis arborea*) are occasionally eaten. Many types of native grasses occur and are eaten with varying degrees of enthusiasm.

Many trees are beginning to grow also. Bitternut hickory (*Carya cordiformis*) and post oaks 1-3 ft. tall are numerous. Wild cherry trees (*Prunus serotina*) are small but plentiful. Black willow (*Salix nigra*) was planted several years ago. The Orangutans keep these about 2' tall.

We have introduced several species of plants, some inadvertently at first. Uneaten seeds provided for foraging began to sprout. In the exhibits we grow turnips, corn, millet, pumpkin, sunflower and cantaloupe. Last year several sunflowers reached maturity and dried on the stalk before being eaten. Corn, millet and turnips have also reached maturity. Pumpkin plants, flowers, fruits and vines are very favorite items. Pumpkin plants rarely reach maturity in the Orangutan yard although the keepers have been able to harvest many pumpkins from the Chimpanzee (*Pan troglodytes*) and Gorilla (*Gorilla g. gorilla*) years. Cantaloupe is new this year but so far appear healthy. Ohio horse mint (*Blephilia ciliata*) also has been planted but is eaten very rarely.

We deliberately sow and plant to increase the variety. This year we have planted several species of flowers. These include the gloriosa daisy (*Chrysanthemum ssp.*) and lance-leaved coreopsis (*Coreopsis lanceolata*). We are trying to increase the number of shrubs

Enabling Orangutans to Forage on Exhibit, Continued

that occur. Flowering quince (*Chaenomeles speciosa*) is growing nicely. We planted red-leaved barberry (*Berberis thunbergii* 'Atropurpurea') this year. The Orangutans apparently have no interest in either species.

This program of native and introduced plants gives the Orangutans a much more interesting and interactive environment. It also allows the public to view the Orangutans exhibiting normal behaviors. This has become an integral part of our enrichment. The behaviors of our Orangutans clearly demonstrate the benefits of this program.



Photo above shows several Orangutans playing in the Post Oak tree in the yard at the Little Rock Zoo. Photo below shows 1.0 Sumatran orangutan "Ronald" foraging in the well-planted primate yard. This animal died last year and is not one of the 1.3 Orangutans currently on display at Little Rock. (Photos by Ann Radamacher)



SCIENTISTS FIND SECOND NEW MAMMAL IN VIETNAM

GLAND, Switzerland - Less than two years after discovering the Vu Quang ox (*Pseudoryx nghetinhensis*) in northern Vietnam's Vu Quang Nature Reserve, scientists from the Vietnamese Ministry of Forestry and WWF-World Wide Fund For Nature recently found a new species of deer.

Such finds are extremely rare, more so since they come from the same location. Before these two finds, only five new species of large mammals have been discovered in this century. Although it was found last month, genetic analysis confirmed the latest find as a new species of deer only late last week. This find also answers some of the questions raised last year when scientists from the Ministry's Forest Inventory and Planning Institute found evidence that there may be a new species of deer in the area. Further investigations are being conducted, and these may yet reveal more new species.

The scientists are calling the latest find, the Giant Muntjac, as it is about one and a half times bigger than the largest known muntjac (*Muntiacus muntjak*). The other unique features of the Giant Muntjac include its longer antlers (20cm) of bowed rather than recurved shape, much longer brow tines (up to 10cm), short pedicles, and massive canines.

Estimated to weigh between 40-50kg, the Giant Muntjac also lacks the tuft or crest of hair normally found on the brow and base of antlers of other muntjac species. World deer experts have confirmed that these features indicate that the Giant Muntjac is a new species of deer.

Genetic analysis of skin samples done by the Institute of Zoology, University of Copenhagen in Denmark, have shown that the Giant Muntjac is clearly distinct from the other known muntjacs found in the same area. Further tests will be conducted to determine its relationship to other deer species. No live specimen was taken but the scientists found 19 trophies of the new deer in hunters' homes in the village where trophies of the Vu Quang ox or sao la (its indigenous name) were discovered in May 1992. Villagers hunt the Giant Muntjac for its meat. It is one of the most commonly caught species, after the wild pig. Between 15-20 animals were trapped locally from July 1993 to January 1994, suggesting that the new species is relatively common.

"We are very proud that a joint Vietnamese/WWF survey team has discovered another new mammal species in Vu Quang Nature Reserve," said Mr Nguyen Quang Ha, Vietnam's Minister of Forestry. "The Vietnamese Government is doing its utmost to protect Vu Quang, which is obviously very important for endemic species."

Since the discovery of the sao la, the Vietnamese Government has enlarged the reserve from 16,000ha to almost 60,000ha, and imposed logging and hunting bans. WWF is helping to protect the reserve. It is also helping to establish corridors between the reserve and the soon-to-be approved 100,000ha Phu Mat Reserve, located 125km north-west of Vu Quang, along the Laos border. Phu Mat also harbours the sao la and other large mammals such as the Asian elephant, tiger, and gaur.

So far, the new deer has been found only at Vu Quang, 10 hours by road from Hanoi. However, it is possible that, like the sao la, the Giant Muntjac may also exist in the adjacent forests of Vietnam's Nghe An Province and in Laos. There have been unconfirmed reports of a similar find in Laos by scientists from The World Conservation Union (IUCN), also in March 1994. >*GreenDisk, April/May 1994, Vol. 2, No. 6*



Information Please

Information wanted on Ocelots, or other felids that may have exhibited any breeding or estrus behaviors during pregnancy. Please describe the behavior, the stage of pregnancy, and the number of days before parturition. Contact: Sara Weller, Dallas Zoo, 621 E. Clarendon, Dallas, TX 75203.



Hippopotamus

hinders. Peacock posteriors.

Rhinoceros rumps. Polar bear behinds. When it comes to the backside of animals, beauty is most definitely in the eye of the beholder. Each hind-end is unique in its own way. The 1995 Animal Buns calendar presents a behind-the-scenes perspective of a dozen of nature's cheekier creatures. Whether the animal fannies are colorful, ornamental, symmetrical, furry, feathery, cute, shapely, or humongous, this bun-of-a-kind calendar illustrates tail-ends in all of their glory and glamour.

Fifty percent of the proceeds from the 1995 Animal Buns calendar is being donated to global wildlife conservation projects, and the other fifty percent benefits keeper education and professional development programs of the San Diego Chapter of the American Association of Zoo Keepers (AAZK), the producer of the calendar.

Suggested retail of the calendar is \$11.95.

Calendars can be purchased individually or zoos, gift shops and AAZK Chapters can purchase the calendar wholesale at a discount of 55%; price includes freight. Price is not printed on the calendar, and the calendar carries a scannable UPC code on the backside.

Don't Get Left Behind...

Make sure you're prepared when your customers come in asking for the calendar everyone is talking about. AAZK Chapters can purchase the calendar wholesale, sell them retail, and keep the profit—an excellent Chapter fundraiser! Four-color sales sheets are available for imprint with your Chapter, giftshop or zoo name. In addition, your chapter or zoo giftshop will be listed as an outlet for purchasing the calendar. Send or fax your order in now—this calendar will sell out. And remember, every penny earned benefits either conservation or keepers. It's truly a win-win product!



Date:	
Buyer's Name:	
Buyer's Signature:	
Billing Address:	
City • State • Zip:	
Phone: ()	Fax: ()

Resale number:
Ship to Attn:
Zoo/Giftshop/AAZK Chapter:
Street Address:
City • State • Zip:

	Item#	Description	Price Each	Quantity	Total \$ Amount
1	42349-R	1995 Animal Buns Calendar (retail)	\$ 11.95		
2	42349-W	1995 Animal Buns Calendar (whlse)	5.38		
		Shipping (no charge in USA)	n/c		

Send Orders To:

Andrew Simmons, Secretary
San Diego Chapter of AAZK
c/o the San Diego Zoo, P.O. Box 551
San Diego, CA 92112-0551 U.S.A.
Telephone: (619) 231-1515, extension 4672

Or Fax Your Order To:**(619) 441-9130****Total Amount \$**Net 30 days to approved zoos, gift shops
and AAZK Chapters**A MINIMUM ORDER OF 25
CALENDARS REQUIRED FOR
WHOLESALE ORDERS.**

Conference '94

Omaha, Nebraska

October 9 - 13, 1994

For those of you who will be driving through the Great Plains to attend the Omaha Conference, there are many points of interest you may wish to take in along the way, including:



"A KEEPER'S PERSPECTIVE"

1994 NATIONAL CONFERENCE
OMAHA, NEBRASKA

- Niobrara State Park, Niobrara, NE
- Ashfall Fossil Beds State Historical Park, N.E. of Orchard, NE
- Stuhr Prairie Pioneer Museum, Grand Island, NE (308) 385-5316
- Arbor Lodge State Historical Park, Nebraska City, NE
- Indian Cave State Park, S.E. of Auburn, NE
- Strategic Air Command Museum, Bellevue, NE (402) 292-2001
- Buffalo Bill Ranch State Historical Park, North Platte, NE (308) 535-8035
- Amana Colonies - west of Iowa City, IA (800-245-5465)
- Living History Farms, Des Moines, IA (515) 278-2400
- DeSoto Bend National Wildlife Refuge, Missouri Valley, IA (712) 642-4121
- Lake of the Ozarks State Park, S.E. of Jefferson City, MO
- Worlds of Fun Amusement Park, Kansas City, MO (816) 454-4545
- Mount Rushmore National Monument, Rapid City, SD
- The Black Hills and Badlands, Rapid City, SD

*For further information, please call phone numbers listed.

In addition, we urge you to visit some of the many great zoos located throughout Nebraska and the surrounding Midwestern states!



**1994 AAZK National Conference
Omaha, Nebraska
October 9 - 13, 1994**

CONFERENCE REGISTRATION FORM

Name _____

Address _____

City _____ State/Province _____

Zip/Postal Code _____ Phone (_____) _____

Zoo Affiliation _____

Position>Title _____

AAZK Chapter _____

Number of AAZK Conferences you have attended _____

AAZK Committee Member? _____

Presenting a Paper?	YES _____	NO _____
Conducting a Workshop?	YES _____	NO _____
Participating in Zoolympics?	YES _____	NO _____
Bringing an Auction Item?	YES _____	NO _____

Vegetarian? YES _____ NO _____ TYPE _____

T-Shirt ? YES _____ NO _____

SIZE: SM MED LG X-LG

Arrival Date and Time: _____

CONFERENCE FEES * (Does Not Include Cost of Conference Proceedings)

AAZK Member or Spouse	\$100.00	_____
Non-Member	\$110.00	_____
Late Fee (after Sept. 1, 1994)	\$ 10.00	_____

TOTAL FEE ENCLOSED \$ _____

* Fees include a \$15.00 contribution to AAZK National.

Roommates are the responsibility of each registrant.

Please make checks payable to: AAZK Conference '94

Return This Form and All Fees To:

Carla Wieser
Omaha Chapter AAZK
Omaha's Henry Doorly Zoo
Omaha, NE 68107

AMERICAN ASSOCIATION OF ZOOKEEPERS



"A KEEPER'S PERSPECTIVE"

**1994 AAZK National Conference
Omaha, Nebraska
October 9 - 13, 1994**

HOTEL REGISTRATION FORM

Name _____

Street Address _____

City/State/Zip _____

Telephone _____

Rooms will be held until 6PM only unless guaranteed with a major credit card.

Diner's Club ____ Master Card____ AmEX ____ Discover ____ Visa ____

Card Number _____ Expires _____

Once guaranteed, there will be no refund for cancellation.

ROOM RATES: (Includes Sales Tax)

_____ 1 Double Bed	\$66.90	Arrival _____
_____ 2 Double Beds	\$66.90	Departure _____
_____ 1 King Bed	\$66.90	Check-in: 2:00 P.M.
_____ Holidome (poolside)	\$82.51	Check-out: 12 NOON

* Not responsible for roommates

Parking at the Holiday Convention Center is free for those registered at the hotel.

To make reservations by phone, dial (402) 393-3950

Please return this form to:

HOLIDAY INN CENTRAL
3321 So. 72nd St.
Omaha, NE 68124

**HOLIDAY
CONVENTION
CENTRE**



Registrations are due by 10 September 1994

Conference '94

Daily Registration/Single Event Fees

For those individuals who will not be able to attend the entire Conference, the following rates show the cost of daily registration/single events. These rates apply **only** to those individuals who do not pay full registration fees. If you have paid **full** conference registration, all events listed below are included in that fee.

Sunday, Oct. 9th:

Evening Event: Icebreaker/Beach Party 7:00 p.m. - 1:00 a.m. (heavy hors d'oeuvres 7-8 p.m.; munchies/beverages 7 p.m. - 1 a.m.; Live Band "The Labels"). **COST: \$20.00**

Monday, Oct. 10th:

All-day paper session/breaks 8:00 a.m. - 5:00 p.m. **COST: \$10.00**

Tuesday, Oct. 11th:

Daytime Event - trip to Heartland Park, Zoolympics, Sack Lunch, afternoon at the Old Market. **COST: \$10.00**

Evening Event: Silent Auction 7-9 p.m., beverages provided; Dance/Blues Night 9 p.m. - 1 a.m., munchies/beverages, entertainment (varied music by disc jockey). **COST: \$15.00**

Wednesday, Oct. 12th:

Daytime Event: Trip to Omaha's Henry Doorly Zoo; lunch at concession stands; workshops and behind-the-scenes tours; Intertribal Dancers Powwow; BBQ Dinner/Beverages. **COST: \$20.00**

Evening Event: Dance/Country Western Night 8:30 - 11 p.m., munchies/beverages; entertainment (varied music by disc jockey). **COST: \$15.00**

Thursday, Oct. 13th:

Morning Paper Session - 8:30 - Noon **COST: \$5.00**

Awards Luncheon: Noon - 1:30 p.m. **COST: \$15.00**

Evening Event: Final Banquet/Live Auction/Dinner 6:30 - 8:00 p.m., meal/beverages; Mardi Gras Dance 8:00 p.m. - 1:00 a.m., beverages; Entertainment: Live Band "The Rumbles". **COST: \$30.00**



"A Keeler Perspective"

Legislative Outlook

*Compiled by
Phyllis Nilson-Wojcik
Legislative Advisor*



Administrative Changes in ESA Seek To Make It More Effective

Secretary of the Interior Bruce Babbitt and D. James Baker, Under Secretary of Commerce for Oceans and Atmosphere in late June announced a series of new policies aimed at improving the Endangered Species Act's effectiveness while making it easier for Americans to work with and understand. These changes in the way the Federal government administers the Endangered Species Act will make the Act more effective in recovering listed species and enhance its flexibility for businesses and private landowners.

Among changes announced are policies that minimize the social and economic impact of recovery planning under the Act; provide independent scientific peer review of listing and recovery decisions; require agencies implementing the Act to identify quickly and clearly activities on private lands that may be affected by a listing decision; create cooperative, ecosystem-based approaches to conserve listed and candidate species before crises arise; establish guidelines to ensure decisions made under the Act represent the best available scientific information; and provide a greater role for state agencies, with a closer relationship between Federal and state officials.

The 1973 Endangered Species Act is designed to identify, protect and facilitate recovery of species facing extinction. The two Federal agencies with primary responsibility for implementing the Act are the Interior Department's U.S. Fish and Wildlife Service (USFWS) and the Commerce Department's National Marine Fisheries Service (NMFS).

A main focus of the new policies is strengthened cooperation between the USFWS and the NMFS. In addition, the policies emphasize closer communication and cooperation with other Federal agencies, state and local officials, non-governmental groups and private citizens.

To ensure the scientific analysis of information used by the USFWS to list and recover species is as comprehensive as possible, a new policy establishes an independent peer review process. The USFWS will solicit expert opinion of three independent specialists to analyze data on which listings are based. The peer review process will also be used during development of recovery plans.

Under another new policy, designed to minimize any social and economic effects of recovery planning, the composition of recovery planning teams will be expanded beyond the scientific community to include other areas of expertise. The USFWS has always solicited public input during recovery planning. However, including representatives of local interests on recovery teams will ensure recovery decisions are both scientifically sound and sensitive to human needs. The goal is to reduce the likelihood of economic disruption caused by recovery activities while ensuring that species recover.

Another policy, designed to ease concern about use of private land when a species is listed, requires the USFWS to identify immediately those actions permissible under the Act and those that could be violations. This information would be provided in the final listing rule, along with a USFWS contact for landowners uncertain about activities not delineated in the rule.

Legislative Outlook, Continued

In an effort to improve coordination with State agencies, the USFWS will consult states on candidate species identification, monitoring, and development of prelisting actions; listing decisions; and recovery activities, including development of recovery plans. Also emphasized will be multi-species listings, and recovery plans for species sharing the same ecosystem.

>*Department of the Interior News Release, 14 June 1994*

Canada Signs Wetlands Conservation Accord

With Canada's signature on the "1994 Update", completing the signing earlier by Mexico and the United States, the North American Waterfowl Management Plan has now been renewed for another five years, with an expanded vision for achieving its original 1986 goals and conserving biodiversity on a continental basis. In signing the update, Canada also pledged \$30 million in funding over the next five years and extended that country's commitment to the Plan to the year 1999.

In May the U.S. and Mexico signed the "1994 Update". This marked the first time Mexico had signed the agreement, making it a full partner with the other two countries in what USDI Secretary Bruce Babbitt and Shelia Copps, Canada's Deputy Prime Minister, have called the "most extensive and successful wetlands and wildlife conservation program ever."

The North American Waterfowl Management Plan, originally signed in 1986, is an agreement to reverse the continent's loss of wetlands and stem the decline in populations of waterfowl and other migratory birds. Recognizing that these goals exceeded the capability of government wildlife agencies alone, the Plan calls for unprecedented partnerships and the pooling of resources by public and private agencies, corporations, landowners, and others. To date, such partnerships have invested \$500 million towards the protection, restoration, or enhancement of two million acres of wetlands.

>*U. S. Department of the Interior News Release June 24, 1994*



Aussie-Bred Frogs Join Jet-Set to Hong Kong

According to an Australian Associated Press release out of Melbourne, 300 rare and specially-bred Asian frogs have left that city via a QANTUS jet bound for the exotic port of Hong Kong. The endangered Romer's tree frogs were bred by the Melbourne Zoo from an original group of 30 animals which were sent to them some 20 months ago. Zoo spokesperson Judith Henke said the frogs were sent to the Melbourne Zoo after their habitats on three Hong Kong islands were bulldozed in the development of the new airport there. The Aussie-bred frogs will be returned to their natural habitats once new homes have been completed for them in swampy areas on Hong Kong islands away from the airport.

**THE
GOURMET
RODENT™**

Visa

RATS AND MICE

Bill & Marcia Brant
6115 SW 137th Avenue
Archer, FL 32618
(904) 495-9024
FAX (904) 495-9781
© All Rights Reserved

A Comparison Between Fecundity Rates in Captive Hatched and Wild Collected Endangered Round Island Day Geckos (*Phelsuma guentheri*) at the Jersey Wildlife Preservation Trust, U.K.

By

Brij Kishor Gupta, Development Officer
The Coimbatore Zoological Park & Conservation Centre
Pioneer House, Peelamedu, Coimbatore 641 004, India

Introduction

The genus *Phelsuma* comprises approximately 57 living and two recently extinct taxa of lizards, that live primarily in islands in the western Indian Ocean (McKeown, 1993). New species are continuing to be described as they are discovered by researchers. Four *Phelsuma* taxa are endemic to the main island of Mauritius. All four are typical small to medium sized, colorful diurnal species. A fifth taxa, *Phelsuma guentheri*, is now extinct on the main island of Mauritius, but still occurs on the offshore islet of Round Island, 20km north-northeast of the main island (McKeown, 1993). It is a rather drab brown, grey or pale green in color and large with a snout-vent length of almost 140mm in adult males. *Phelsuma guentheri*, before human settlement of Mauritius circa 1600, occurred there as well (McKeown, 1993). Remnants of egg shells can still be found on upper portions of caves on Mauritius (Jones, 1988).

According to the International Union for the Conservation of Nature (IUCN) 1990, the species is endangered. It is found in close association with lantan palms (Vinson & Vinson, 1969). The wild population has declined due to the impact of introduced rabbits and goats deteriorating its native habitat, prior to the elimination of these non-native mammals. The consequent devastation of the vegetation has resulted in intense soil erosion, a situation further aggravated by the cyclones that occur regularly in this part of the world. Vinson (1975) estimated a population of 1500-1800 animals. Since that estimate, cyclone "Gervaise" hit Round Island in 1975 destroying many specimens of lantana plants. A further study by the University of Edinburg gave revised population estimates of only 200-300 individuals (Bullock & North, 1975). Since that time populations have recovered and the vegetation is starting to grow back (McKeown, 1993).

The species has become endangered because of habitat destruction caused by the introduction of non-native goats and rabbits and the resulting habitat degeneration (Vinson & Vinson, 1969). A Captive Breeding Program for the species was instituted at the Jersey Wildlife Preservation Trust in 1977.

The aim of this study was to review the records of this endangered species, *Phelsuma guentheri* at Jersey Wildlife Preservation Trust and to analyze the egg productivity (fecundity) rate from both captive-bred and wild-caught females.

Methods

The basic information regarding this captive population of *Phelsuma guentheri*, presented in this research report, is based on data stored in the Jersey Wildlife Preservation Trust's Animal Records System (ARS) since 1977. It was compiled by the Curator of Reptiles, and the Reptile Section's Head Keeper on a day-to-day basis, and analyzed by the author at the Gaherty Reptile Breeding Centre after the arrival of the first nine specimens of this taxa.

Breeding

There may be as few as 120 specimens of the Round Island day gecko (*P. guentheri*) in zoos and private collections around the world. Many of these are descended from the 16 wild-caught animals imported into Jersey in 1977.

Round Island Gecko Fecundity Rates. Continued

The main problem in breeding these geckos so far is the skewed sex-ratio of hatching, in favor of females that has been noticed in Jersey. This has been noted for the Mauritius species *Phelsuma guimbeau* when bred in captivity (McKeown, 1993). McKeown (1993) believes the problem is associated with some aspect of vitamin/mineral supplementation, since incubation temperature does not appear to be the problem. At an earlier time, this skewed sex ratio was thought to be due to too low an incubation temperature (Thorogood and Whimster, 1979; Wagner, 1980). However, attempts to test this hypothesis by using additional heating have not been successful for us, also.

Results

The fecundity schedule among the *Phelsuma guentheri*, wild and captive born females was as follows: both groups started laying eggs when they passed the age of 200 days (0.76 years). Most of the females started laying the maximum number of eggs at the age of 3200-3500 days - i.e., 100%. After this age, they reach a point of peak egg production which remains static. The wild-caught females were recorded laying eggs at the age of 5598 days (15.34 years). The captive-born females last recorded egg laying was at the age of 4829 days (13.25 years) (See FIGURE 1). The mean number of eggs laid by the females was recorded at 13.38 eggs per individual.

Discussion

The captive and wild-caught *Phelsuma guentheri* fecundity rate at the Gaherty Reptile Breeding Centre, Jersey Wildlife Preservation Trust shows a very interesting relationship. The percentage females start laying eggs at their maturity time, i.e. 200 days. There was no significant difference between captive and wild-caught females. In the beginning of their breeding history, the captive-born females start laying eggs later in comparison to the wild-caught females. However, in the later phase of their breeding life, the captive-born females start laying eggs sooner in comparison to the wild-caught; the age of 3300 days to 5000 days for both captive and wild-caught females lay eggs in the constant manner, because, in both situations, the females reach a certain point of maturity where the females lay eggs at the same percentages. Seventy-five percent of wild-caught and captive-born females at the age of 2600 days meet at the point where the percentage females were the same in the captive and wild cases.

The captive-born females show a classic sigmoid curve, because they have a constant environment throughout the year and their rate of growth was also very constant. The captive population also gets highly nutritious food. The wild-born females do not show the good curve. Their curve is more erratic, because their slower growth, the effect of being brought into captivity, and having to adjust to a new environment and diet stresses the females. Dietary problems were also encountered during the breeding season at Jersey Wildlife Preservation Trust (Bloxam et al, 1978). These measures might affect the fecundity schedule of wild-caught females.

Acknowledgments

This paper is the result of the training program supported by grants from the Jersey Wildlife Preservation Trust (JWPT) and British Airways Assisting for Nature Conservation. I am grateful to Jeremy Mallinson, Zoological Director JWPT and Q. Bloxam, Curator of Reptiles, for permitting me to observe the different Round Island species of reptiles. Thanks to Dr. John E. Fa, Training Officer JWPT for his help in data analysis. I am also thankful to Pamela, Record Registrar; Richard Gibson, Head Keeper Reptiles; and Chris Clark, Assistant Training Officer for their help. I am also thankful to all the zoo staff for their full-time help, moral support and encouragement.

Round Island Gecko Fecundity Rates, Continued

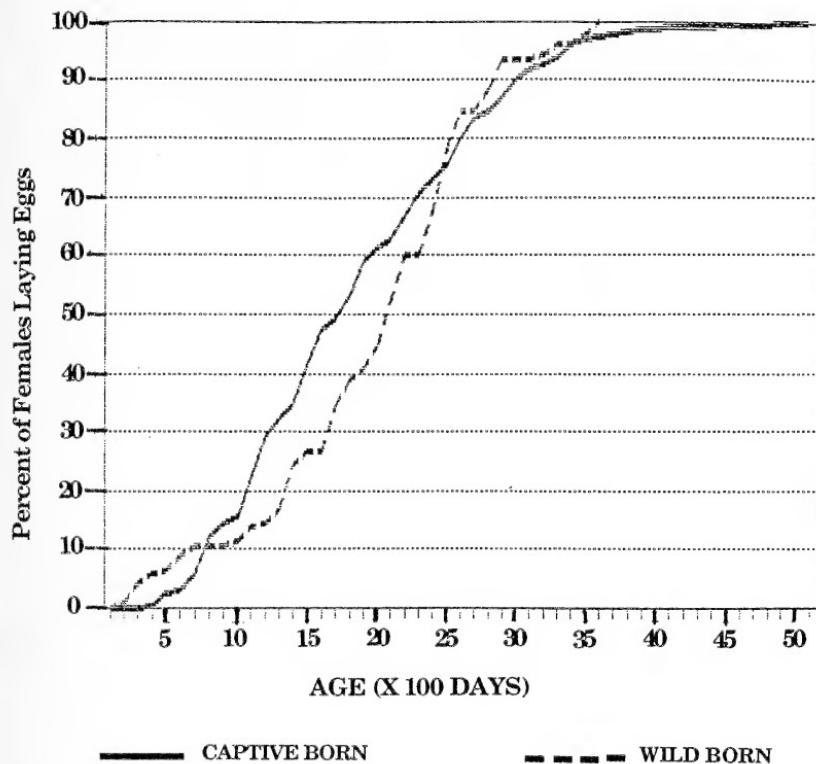
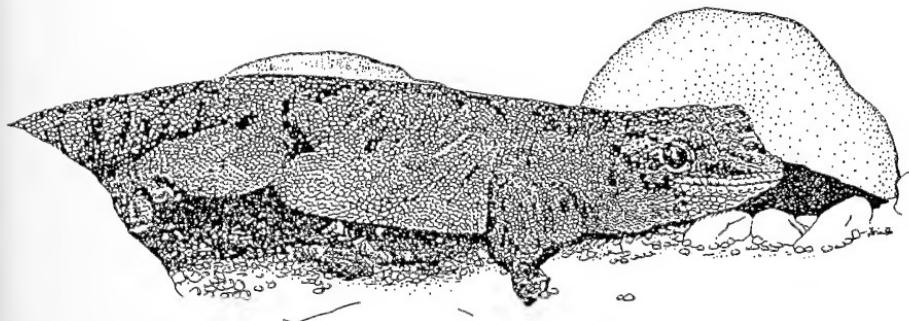


FIG. 1 - The fecundity schedule of captive and wild-born *Phelsuma guentheri* at J.W.P.T. from 1978 - 1992.



Round Island Gecko Fecundity Rates, Continued

References Cited:

- Bloxam, Q. and Vokins, M. (1978). Breeding and Maintenance of Phelsuma guentheri at the Jersey Zoological Park. The Dodo Journal of the Jersey Wildlife Preservation Trust No. 15: 82-92.
- Bullock, D. and North, S. (1977). Report on the Edinburg University expedition to Round Island, Mauritius, July and August 1997. Unpublished.
- Jones, C.G. (1988). Remains of Gunther's gecko egg found in the Black River gorges. Roy. Soc. Art. AC: Mauritius V (1): 135-136.
- McKeown, S. (1993). The General Care and Maintenance of Day Geckos. Advanced Vivarium Systems. Lakeside, California.
- Thorogood, J. and Whimster, I.W. (1979). The maintenance and Breeding of the Leopard Gecko, Eublepharis macularius as a laboratory animal. Int. Zoo. Ybk. 19: 74-78.
- Vinson, J. and Vinson, J.M. (1969). The saurian fauna of the Mascarene Islands. Mauritius Institute Bulletin. Vol. VI Part 4.
- Vinson, J.M. (1975). Notes on the reptiles of Round Island, Mauritius Institute Bulletin Vol. VIII, Part 1.
- Wagner, E. (1980). Gecko husbandry and reproduction. In: Reproductive Biology and Disease of Captive Reptiles. In: Murphy, J.B. and Collins, J.T. (eds.) SSAR Contrib. to Herpetol. No. 1, pp. 115-117.

(This paper was reviewed for AKF by Sean McKeown, Curator of Reptiles at the Chaffee Zoological Gardens of Fresno, Fresno, CA and Howard Lawler, Curator of Herpetology at the Arizona-Sonora Desert Museum, Tucson, AZ. We wish to thank both of these zoo professionals for sharing their expertise in our review process. Special thanks to Sean McKeown for his extensive revisions and editorial suggestions.)



AAZK Announces New Professional/Contributing Members

Lyle Jensen, New England Alive, Inc. (MA)
Lisa Sanders, Livingston Manor, NY
Chris Buch, Milwaukee Co. Zoo (WI)
Linda Berry, Little Rock Zoo (AR)
Jonathan K. Peacock, Ft. Worth Zoo (TX)
Jennifer Piccin, Cheyenne Mtn. Zoo (CO)
Paul Campos, Santa Ana Zoo (CA)

Jennifer Verstraete, Trailside Mus/Zoo (NY)
Tammy Smith, Indianapolis Zoo (IN)
Eva Jacobson, Audubon Zoo (LA)
Janet Mercer, Mustang, OK
Linda Tipps, Ft. Worth Zoo (TX)
Ray Cosper, Santa Ana Zoo (CA)
Robin Marirea, Bermuda Aquarium

New Contributing Members

Discovery Island, Walt Disney World, Lake Buena Vista, FL
Debra Burch, Miami, FL
Dan Bebak, Director, Mote Marine Aquarium, Sarasota, FL
Joe Rindler, Strategies, Inc., Deleware, OH

Renewing Contributing Members

John Seyjagat, Director, The Lubee Foundation, Inc., Gainesville, FL
John Bretton, San Diego, CA



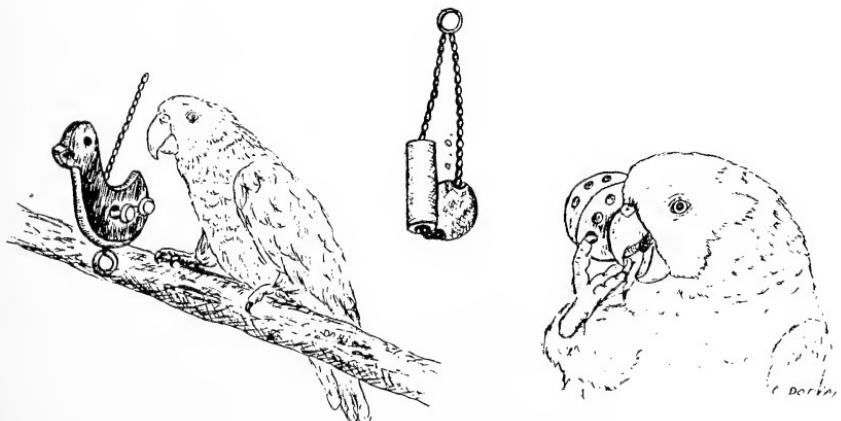


We would like to thank everyone for sending in their ideas to the column. There have been many creative and new ideas. Keep those ideas coming in!! Just a reminder, Dianna Frisch, Columbus Zoo, will be holding the next Enrichment Workshop at the National AAZK conference in Omaha and could use your help. There is a notice in this month's Scoops and Scuttlebutt column as to what she needs help with.

AMAZON PARROT - This Double Yellow-Headed Parrot apparently had no previous exposure to small toys and as an adult, markedly avoided contact with all toy items placed in her enclosure. This avoidance continued for a number of years. After observing small primates interacting with similar manipulative objects, she began to show daily interest in several objects -- a sturdy wiffle-type ball with a jungle bell inside, a wooden duck toy with moveable dowels (specifically made for birds by several companies, one called "B Is For Birdtoy" about \$8.98) and a hand-made toy consisting of two moveable blocks of wood on a chain. This initial interest began when the parrot was approximately 20 years old. Using her beak, tongue and feet she manipulates and jingles the ball. She appears to be intermittently interested by and frustrated with the unalterable nature of the ball, and will sometimes lose her temper and demonstrate tantrum behaviors, such as eye flashing and rhythmic dinging of the ball with her beak. The ball, after about a year of daily play, shows no signs of wear. The chewable wood of the duck appears less frustrating. She has made head-way with it, rounding the edges of the wood and chewing off one dowel. She has also been given a set of metal car keys on a heavy wire, but so far prefers the other toys.

The ball works well with Squirrel monkeys also and the two wooden toys with other small monkeys (Capuchins, Guenons).

--Camille Dorian
Monkey Jungle, Orinda, CA



Chapter News

San Antonio AAZK Chapter

This spring has seen an increase in Chapter membership. We held a membership drive that resulted in 25 new or renewing members, bringing the total Chapter membership to 40. New officers were also elected this spring. They are:

Acting President/VP.....George Ann Neubauer

Secretary.....Terry Fisher

Treasurer.....Kim Hoskins

Chapter Liaison...Chris Pfefferkorn

We held our Bowling for Rhinos in May and it was a big success. We raised over \$3000.00 for the Ngare Sergoi Sanctuary and/or Ujung Kulon National Park. We has 65 bowlers participate with our Mammal Superintendent Raymond Figueroa raising the most money for the third year in a row. We woulds like to thank Jim and Madelyn Crook of San Pedro Bowl and the other corporate sponsors for their support plus all the volunteers for their time and effort to make Bowling for Rhinos a big success.

--Kris Pfefferkorn, *Chapter Liaison*

Zoo Atlanta AAZK Chapter

Bowling for Rhinos '94 was held this spring and as always was an entertaining fundraiser for all who attended. Our top moneyraiser was Heidi Hellmouth who brought in over \$500.00. This contributed greatly to our overall Chapter total of over \$4000.00. This total also included raffle ticket and T-shirt sales. A pre-event fundraiser was also held which featured Andy Lodge as our guest speaker followed by a BBQ at the zoo.

This spring the Chapter sponsored a member to attend the Small Primate TAG meeting in Pennsylvania as a part of our ongoing commitment to continuing keeper education. Sponsorship of our friend and fellow keeper Pundreeka Rao from India will continue for another year. We hope to have a scrapbook detailing and documenting our long-dustance relationship completed for him soon.

Chapter Treasurer Ann Hinton & Co. are busily rolling Wishing Well coins for future conservation project donations.

--Michelle R. Schireman, *Chapter Liaison*

Rocky Mountain AAZK Chapter

We have had several changes in our officers over the past couple of months. At our 11 July meeting, these officer changes were voted upon. Our officers are now:

President.....Susan Nolan

Vice President.....Mark Marciniak

Secretary.....Christine Bobko

Treasurer.....Linelle Lone

Chapter Liaison.....Vickie Kunter

In other Chapter news, plans for the 1995 AAZK National Conference continue to roll along. The Conference Committee meets regularly and fundraisers are ongoing.

Bowling for Rhinos was finally held on 24 June. It was postponed from its original date in April when we discovered (about a week prior to the date!) that the location reserved had been closed due to some financial troubles. This year we kept the event pretty low key due to all the conference preparations, but we still had a fair turnout. All the money collected has not been officially tallied yet, but there should be between \$5-6,000.

--Vickie Kunter, *Chapter Liaison*

Minnesota Zoo Chapter AAZK

The recently formed Minnesota Zoo Chapter of AAZK held its first annual Bowling for Rhinos bowl-a-thon on 10 June 1994. The event was coordinated by Chapter members L. Trechsel, K. Anderson, C. McKnight, P. Tolan and K. Blossey. Door prizes were given away, rhino-shaped cookies were served, and hand-painted T-shirts and boxer shorts were sold throughout the evening. In all, 37 participants raised funds in excess of \$2,700.00.

A good time was had by all and plans are already underway to make next year's event even more successful.

--Tim Hill, *Chapter Liaison*



Beyond the Iron Bars: Part 2

Zoo Keepers of the Former Soviet Union

By Rana Bayrakci,
Tacoma, Washington



Zoo keepers of the Former Soviet Union (FSU) are constantly fighting two battles: to keep their animal charges alive and healthy and to keep their families fed, clothed and healthy. Together, these create an immense life task in the present countries of the FSU. Zoo keeping tends to be rather primitive; cages and yards are only spot cleaned and diets must be scraped together from food doled out by kitchen staff. Work includes watching their animal charges be harassed and fed potentially harmful objects by the public; keepers lack enough authority to make the public stop. After a day of work at the zoo, keepers must shop for dinner by standing in long lines: one line to look for food options of the day, one line to pay, and one line to pick up the food. Keepers then go home to prepare dinner, tend to the children and apartment.

Often during our travels, we lived with keepers and can therefore better appreciate their long, difficult days. In the following article, I would like to give a general idea of what it is like to be a zoo keeper at a zoo in the FSU. Common aspects of the zoo keeping profession that are intriguing to investigate in a vastly different culture include housing, wages, uniforms, administrative relationships, education level, zoo directors, record keeping, tools, quality of food, available vet care and volunteers.

A few FSU zoos, such as Kiev Zoo (Ukraine), house all their keepers in one apartment building a few steps away from the zoo. This eliminates the difficulties of commuting to work via public transportation from all ends of the city. Rent is not much different from other apartments, and all zoo keepers are required to live there regardless of their salary. However, zoo administrators do not live in these apartments.

Zoo keeper wages are terribly low, which creates a lack of qualified workers since there is absolutely no prestige associated with zoo work. The highest paid keeper at Kiev Zoo makes about \$4.00 per month, while the director takes home \$10.00 per month. Keepers cover a 40-hour work week. 'Specialists' at the Moscow Zoo (Russia), a position roughly equivalent to senior keepers in American zoos, received about \$450.00 per year. Of this salary, apartment rent requires half the amount, while food uses up the remainder. A pair of shoes will cost half a month's salary. Zoo keepers at Moscow Zoo make approximately \$300.00 each year. Yet dedicated staff at many FSU zoos are willing to purchase necessary goods not supplied by the zoo. Elena Aliskerova and Olga Goldova, cheetah keepers at the Moscow Zoo, told me of their rubles spent purchasing formula for cheetah kittens and medications for the seals. But as Elena estimates and we observed, only about one out of fifteen FSU keepers are truly interested in their job; the others are not interested in animals, and only work at the zoo because they have no skills for a better paying job.

Lack of money is a severe problem in FSU zoos. To American zoo keepers, a budget freeze still guarantees animals will be fed and salaries constant. But FSU zoos have inconsistent, minute budgets subject to drastic inflationary pressures. The capital city of Kiev, Ukraine, home of the Kiev Zoo, is struggling with a yearly budget of about \$5000.00.

Therefore, it comes as no surprise that no FSU zoo is able to afford staff uniforms. Zoo keepers generally wear navy or brown work clothing of the traditional style worn by a majority of general FSU laborers. However, there are no uniform requirements. In a society that was once entirely dominated by the military, a uniform in the FSU denotes authority and respect. When zoo keepers without uniforms attempt to stop the public from feeding the animals, Elena and many other keepers told us they were constantly ridiculed and ignored by the public. Uniforms could help foster a sense of pride in zoo staff, and provide a basis of authority with the general public.



Primate keeper with young hand-reared primate of an unidentified species, Kaliningrad Zoo, Russia.
(Photo by Rana Bayrakci)

The educational level of many keepers is equivalent to a high school degree. We met several keepers who held college degrees in biology, zoology or related fields and several who were studying at universities while working at the zoo. Volodya, a quiet, friendly man in his 20's, works in the carnivore section of the Kiev Zoo by day and studies biology by night at Kiev University; he plans to be a zoo director someday. Elena (cheetah keeper, Moscow Zoo) will finish her zoologist degree at Tver State University this year. Most specialists hold university degrees in a natural science field, but it is the exception rather than the rule that keepers continue their education past a high school level. There is no institution available specifically to train zoo keepers in animal care, so training is generally conducted on the job with the new keeper following an experienced keeper for a week prior to assuming assigned animal tasks. However, we met several keepers who held a 'Zoo-tech' degree, probably from a non-keeper-specific vocational school; we never received a clear definition about this degree.

Just as there is no institution to train keepers, zoo directors must also learn by experience. Most directors we met held degrees in the biological sciences, but although chosen by city officials, most lacked zoo director experience. Women zoo directors are not uncommon, although eight of the eleven zoos directors are men. Grodno Zoo, the only zoo in Belarus, is the only institution with an all female administration. Overall, there did not appear to be any sex bias among positions, although the majority of bird keepers were women. Both men and women were keepers, specialists and administrators. Keepers actually do have a chance at the zoo director position at some institutions. At the St. Petersburg Zoo (Russia), present Director Ivan Vladislavovich Korneev was a carnivore keeper chosen by his peers to become the director six years prior.

Zoo keepers are not only treated disrespectively by the public, but often by the administration as well. Relationships between zoo keepers and administrators varied amongst the zoos from open hostility in some institutions to celebration and cooperation at others. At the Riga Zoo (Latvia), we joined keepers and administrators alike in a dancing and vodka celebration on the 81st birthday of the zoo. .

But not all FSU zoo directors knew or interacted with the keepers, since keepers are generally considered lower class and insignificant. Such was the case at the Kaliningrad Zoo (Russia). When I began to question a primate keeper, two specialists blatantly cut off our conversation, unimpressed by the worker and certain I did not need to speak to such a worker. Such disrespect may stem from the average educational level of zoo keepers.



Keeper at Tallinn Zoo, Estonia, filling water pail outside hoofstock yards. This was a more modern zoo, crafted from adapted military buildings.

(Photo by Rana Bayrakci)

Virtually every section in all zoological institutions maintains daily records concerning their animals. Records are maintained by a combination of keepers and specialists, recording behavior, medication and activities such as vet calls just like American zoos. No computers are involved in the record keeping process, nor are records regularly reviewed by curators or other administrators. These records are used by keepers, specialists and vets to help identify and diagnose health problems or monitor breeding or other behaviors.

Tools used by FSU keepers are generally archaic by American standards. In every zoo we saw old fashioned, round, home-made, short-handled stick brooms instead of rakes. Accompanied by metal pails and flat metal shovels that serve as dustpans, zoos also have rickety wooden wheelbarrows to complete a keeper's tool set. We saw one or two pitchforks at the Riga Zoo, Latvia, but I never saw a rake. Rarely are any chemicals or disinfectant used to clean, although raptor keepers at the Kiev Zoo scrub bird pools once a week with a manganese disinfectant. A few zoos have very old and over-used dry 'foot baths' at the entrance of primate sections, presumably some sort of disinfectant.

Most zoos are not running short of foodstuffs, although feed quality if fair to poor. Bread is fed to virtually every species, from large cats to bears and elephants. Hay is generally of poor nutritional value, as demonstrated by camel slump-humps and lamented by Aela Nikitina from the scientific department of Kiev Zoo. This is an especially poignant point considering the Ukraine was once the 'bread basket' of the USSR. Prepared specialty diets, such as "Zu-Pream" are not available; instead raw meat is fed.

Vet care at FSU zoos is highly variable, depending on the amount of financial support received by the zoo. At the Kiev Zoo we saw dark, rotting quarantine cages housing a sick, small cat. At the St. Petersburg Zoo we saw rusty surgical instruments ready for surgery against old, blood-stained paper towels, and 'sterile' rubber gloves freshly rinsed, hanging from a clothesline. At the Moscow Zoo we saw beer cans stashed in medical supply cabinets

Beyond the Iron Bars: Zoo Keepers of the Former Soviet Union, *Continued*

and a domestic cat curled up, asleep, on an empty surgical table. However poor conditions and supplies may be, vet care is good and conducted with input from other vets as well as biological science professors at nearby universities, agricultural specialists and/or medical doctors. Drug shortages are a problem; vitamins and other, stronger drugs are often virtually impossible to find. We saw illegal medications for sale by babushkas (the grandmothers of Russia) on the black market at the Moscow Bird Market. Sometimes, even FSU zoos must shop the black markets for necessary drugs. If zoo animals are stolen, they are usually sold at the same big city markets, although this is an infrequent occurrence.

FSU Keeper Tools:

A far cry from tools found in U.S. Zoos, this round stick broom, metal scoop, stock rake and wheelbarrow left in hoofstock barn hallway make up the 'tools of the trade' for many FSU zoo keepers. Photo taken at Tallinn Zoo, Estonia. (Photo by Rana Bayrakci)

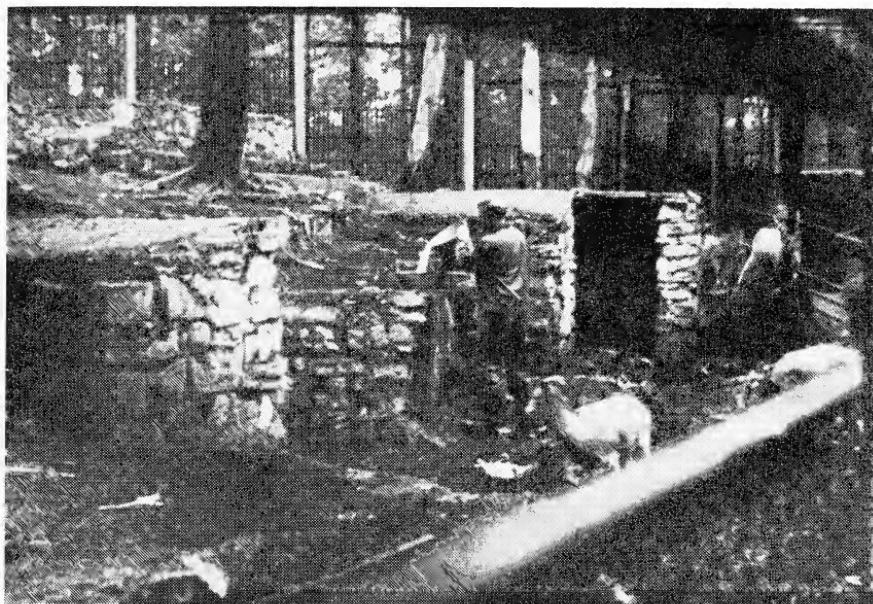


FSU keepers never have the extra help available in American zoos thanks to volunteers. The concept of volunteering is foreign to the people of the FSU. No matter to which curators, specialists or keepers we explained the popular American pastime, it is inconceivable to them to work anywhere in the FSU for free. The simple fact remains that no one has the time. If the volunteer were to be injured, they would be unable to perform their regular work and would only have themselves to blame, said Natalya Rubenstein, curator of education at the Moscow Zoo. Animal safety and comfort are also concerns; these issues are improving by maintaining consistent keeper/animal interactions without interruptions to routine by irregular volunteers or strangers.

Zoo keeping in the FSU is vastly different from that in the United States. However, zoo keepers across the globe share similar goals in animal care, to provide the ideal and most successful environment possible for captive zoo animals. I believe that a friendly keeper exchange of information would benefit all countries involved. Elena Aliskerova of the Moscow Zoo spent six months working as a keeper at the Conservation Center at White Oak Plantation in Yulee, FL gaining valuable knowledge and experience, as did her co-workers in Florida and Moscow. Physical visits are not always possible, nor are they

Beyond the Iron Bars: Zoo Keepers of the Former Soviet Union, Continued

essential. Friendly correspondence could broaden perspectives of keepers around the globe.



Keeper feeding Ibex at Riga Zoo, Latvia. (Photo by Sean Smith)

Note: Elena wrote and asked me to send her and her colleagues information about AAZK. They are presently trying to organize a professional association of FSU zoo keepers. My thanks to Barbara Manspeaker, who provided me with a plethora of information to send to Elena.



SPECIAL OFFER FOR AAZK MEMBERS JULY & AUGUST ONLY

A GUIDE TO AMERICAN ZOOS & AQUARIUMS

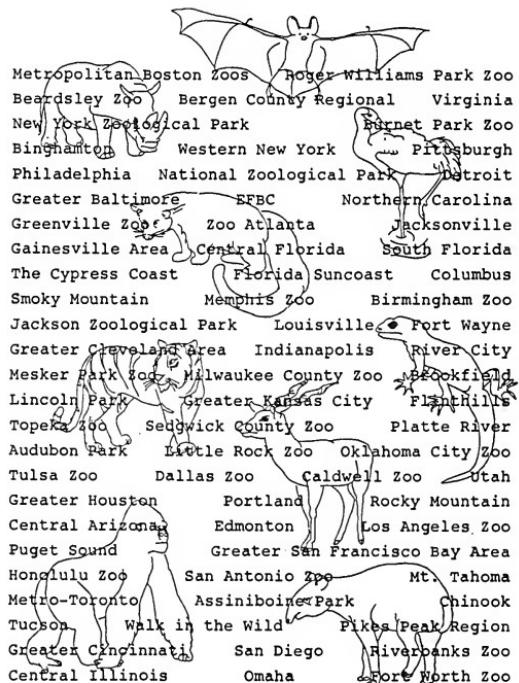
by Darcy & Robert Folzenlogen

Visitor Information, Special Exhibits, Seasonal Festivals, Breeding
Achievements & Research Activities for 173 Institutions
Recommended in the AAZK and AZAD journals!

Suggested Retail Price: \$16.95

Now only \$10.00 for AAZK members. Send this ad + \$10.00 to
Willow Press, 1030 Willow Ave., Glendale, Ohio 45246

National AAZK Chapters
Dedicated to Worldwide Conservation
and Professional Animal Care



American Association of Zoo Keepers

NATIONAL CHAPTER T-SHIRTS

High quality dark purple shirts, animal designs in turquoise with Chapter names lettered in yellow. Includes lettering as shown above. Most all active Chapters are listed. Cost is \$14.00 US which includes shipping.

Please send checks payable to Rocky Mountain AAZK Chapter. All proceeds from the sale of these T-shirts will go directly to the 1995 National AAZK Conference Fund. Leave messages at (303) 388-6224. Send order to: Rocky Mountain AAZK-Conference Committee, 2900 E. 23rd Ave., Denver, CO 80205.

ORDER FORM

Name _____

Mailing Address _____

Phone# (in case of a problem)

Number of shirts

Total amount of money enclosed \$

Introduction of Young Male Colobus Monkey to Surrogate Family Unit (The Adoption of Vinnie)

By

*Tad Schoffner, Lead Keeper - Primate & Cat Building
Cleveland Metroparks Zoo, Cleveland, OH*

On 16 May, 1993 a male Colobus monkey (*Colobus guereza kikuyuensis*) was born to our seven-year-old female, "Christine", and seven-year-old male, "Patrick". Also in the cage was their 15-month-old male offspring, "Mazi". "Vinnie", as he was later named, was Christine's third baby. Her first baby had to be pulled and hand-reared, as she had no clue what to do with him. She cared for her second offspring, Mazi, demonstrating normal maternal behavior. When she had Vinnie all seemed to be going well. The different factor from her previous babies was the presence of a juvenile offspring. Mazi showed the typical jealous behavior associated with no longer being the focus of attention. Christine, like most Colobus mothers, was very patient with Mazi's attention-getting antics, but she occasionally reprimanded Mazi by grabbing him or giving short chase. Still no major problems occurred.

On the morning of 22 July, 1993, keepers found Vinnie on the floor of the exhibit having convulsions. Christine seemed confused and left him, as soon as the keeper went into the cage to retrieve him. Vinnie was taken to the zoo hospital to be examined by the veterinarian. It was determined he had sustained a head injury, possibly having fallen when Christine was chasing Mazi. He was kept out of the cage due to unstable behavior. Because he was still nursing, Vinnie was introduced to Similac Plus Iron® formula. He resisted a nursing bottle but would readily drink formula from a bowl. He had been observed sampling solid foods when he was with Christine, so greens, apple, banana and grapes were made available to him. After five days he was acting normally, but considering the length of time he had been removed from the group, and a potentially aggressive atmosphere with Christine and Mazi, it was decided to hand-rear him until he was weaned.

His animal interaction consisted of playing with and riding any of the three dogs owned by his surrogate caretakers. He liked their company, but if frightened would run to his human keepers. During this time he acquired a taste for dog kibble, helping himself to the food after having watched the dogs eat. Our Colobus monkeys are fed a leaf-eater biscuit, so Vinnie was also offered that. He adapted very well to his new surroundings. After seven weeks, he had advanced enough to warrant a return to the Colobus monkey world.

The group we chose to introduce him to was housed next to his natal family. It consisted of a eight-year-old female, "Flower", who had delivered two stillbirths at our zoo. Also in the group were two young sisters, "Stormy"(2½ years) and "Wanda" (1½). They had lost their parents within the last year. We hoped Flower would adopt Vinnie and that Stormy and Wanda would provide sibling company.

We attached a wire cage to the back wire mesh of their cage for Vinnie's use. This way he and the females could see, hear, smell and touch each other without being in a situation where severe injuries might be sustained.

On 7 September, 1993, Vinnie was returned to the zoo and placed in the hanging cage for 2½ hours on the first day. The females took immediate interest, but Vinnie cried most of the time and showed no interest in eating. The time he spent at the zoo increased daily, and before long Vinnie would fuss when the females were away from him during cage cleaning. By 2 October, 1993, Vinnie was spending 24 hours a day at the zoo.

On 2 November, 1993, we decided to take the final step and actually move Vinnie in with the females. We cut a passageway through his cage into the females' cage just big enough for

The Adoption of Vinnie, Continued

Vinnie to pass through, and affixed a door between the cages. This would give him an escape route back into the cage if necessary, and could be closed to separate him from the group. When Vinnie first went into their cage the females were taken aback; he immediately wanted to cling to any and all of them. For the females this was too much too soon and things got a little rough. A great deal of jumping, tail pulling and "Colobus thumping" took place. Flower (the older female) seemed torn between her apprehension and the desire to hold him. After about two hours Vinnie seemed exhausted and it was decided to separate him from the females so he could rest. All in all, we were pleased with how the first day had gone.

The second day was much better. Things were much calmer and play was less aggressive. Flower was more at ease, holding Vinnie frequently. Even Stormy and Wanda took turns carrying him. Flower exhibited protective behavior toward Vinnie if Stormy or Wanda became too rough. Despite the day's success, we separated Vinnie for the night as a precaution. Day three went equally as well. All four Colobus napped together, and Vinnie was the object of a grooming session (much to his pleasure). Again, we separated them for the night.

When we came in the next morning we were surprised to find that Vinnie had forced the dividing door open and was sleeping in Flower's arms. Stormy and Wanda were huddled close, the picture of a well-adjusted Colobus family. Since then Vinnie has sought comfort and refuge in Flower's embrace and has played happily with the juvenile females as if he had always been a part of this group.

To our delight, an unfortunate situation has worked out well. Vinnie has a surrogate family with which he feels comfortable and in which he is thriving. Flower is getting maternal experience she may never have had. Stormy and Wanda have a new playmate as well as an opportunity to handle a baby, training which may be valuable when they have young of their own.



L.I.N.K.
(Liaison and Information Network for Keepers)

Coordinator for the LINK System: Mark de Denus, Assiniboine Park Zoo, 2355 Corydon Ave., Winnipeg, Manitoba, Canada R3P OR5. (204) 986-6921 [w]; (204) 837-2916 [h]

Regional Coordinators

ALABAMA - Fred Alvey, Zoo Atlanta, 800 Cherokee Ave. S.E., Atlanta, GA 30315

ALASKA - Vacancy

ARIZONA - Vacancy

ARKANSAS - Debbie Jackson or Ann Rademacher, Little Rock Zoological Gardens,
#1 Jonesboro Dr., Little Rock, AR 72205

CALIFORNIA (Northern) - Jean Lai, Oakland Zoo, 9777 Golf Links Rd., Oakland, CA 94605 and
Ruby Lara, Sacramento Zoo, 3930 West Land Park Dr., Sacramento, CA 95822-1123

CALIFORNIA (Southern) - Mr. Kay Munsey, EFBC, HCR 1, Box 84, Rosamond, CA 93560

COLORADO - Vacancy

CONNECTICUT - Jeanette Nadeau, Roger Williams Park Zoo, Providence, RI 02905

DELEWARE - Theresa Maas, Philadelphia Zoo, 34th & Girard Ave., Philadelphia, PA 19104

FLORIDA - Rick Smith, 5752 Stoneridge, Orlando, FL 32839

GEORGIA - Fred Alvey, Zoo Atlanta, 800 Cherokee Ave. S.E., Atlanta, GA 30315

HAWAII - Vacancy

IDAHO - Holly Liappas, Tautphaus Park Zoo, P.O. Box 50220, Idaho Falls, ID 83405

ILLINOIS - Pat Swieca, 5710 W. Cullom Ave., Chicago, IL 60634

INDIANA - Vacancy

IOWA - Carla Wieser, Omaha's Henry Doorly Zoo, 10th St. & Deer Park Blvd., Omaha, NE 68107

KANSAS - Vacancy

KENTUCKY - Scott Wright, Cleveland Metroparks Zoo, 3900 Brookside Park Dr., Cleveland, OH 44109

LOUISIANA - Rhonda Votino, 3535 Houma Blvd., Apt. 109, Metairie, LA 70006

MAINE - Jeanette Nadeau (see addresses under CT)

MARYLAND - Theresa Maas, Philadelphia Zoo, 34th & Girard Ave., Philadelphia, PA

MASSACHUSETTS - Jeanette Nadeau (see addresses under CT)

MICHIGAN - Tim Sampson, John Ball Zoo, 1300 W. Fulton, Grand Rapids, MI 49504

MINNESOTA - Tim Hill, Minnesota Zoological Gardens, 13000 Zoo Blvd., Apple Valley, MN 55124

MISSISSIPPI - Jeannie Frazier, Jackson Zoological Park, 2918 W. Capitol, Jackson, MS 39209

MISSOURI - Vacancy

MONTANA - Holly Liappas (see address under Idaho)

NEBRASKA - Carla Wieser (see address under Iowa)

NEVADA - Patricia Simonet, Wildlife Safaris, P.O. Box 6735, Incline Village, NV 89450

NEW HAMPSHIRE - Jeanette Nadeau (see addresses under CT)

NEW JERSEY - Frank Leonard, Bronx Zoo, 185th & Southern Blvd., Bronx, NY 10460

NEW MEXICO - Bruce Eneboe, Reid Park Zoo, 1100 S. RandolphWay, Tucson, AZ 857716

EAST NEW YORK - Frank Leonard, Bronx Zoo, 185th & Southern Blvd., Bronx, NY 10460

WEST NEW YORK - Alan Baker, Burnet Park Zoo, 500 Burnet Park Dr., Syracuse, NY 13204

NORTH CAROLINA - Lucy Segerson, North Carolina Zoo, Rt. 4, Box 83, Asheboro, NC 27203

NORTH DAKOTA - Bob Debets, Assiniboine Park Zoo, 2355 Corydon Ave., Winnipeg, Manitoba

Canada R3P 0R5 (204) 986-6921 [w]

OHIO - Scott Wright, Cleveland Metroparks Zoo, 3900 Brookside Park Dr., Cleveland, OH 44109

OKLAHOMA - Debbie Jackson or Ann Rademacher (see addresses under AR)

OREGON - Anna Michel, Washington Park Zoo, 4001 SW Canyon Rd., Portland, OR 97221

PENNSYLVANIA - Theresa Maas, Philadelphia Zoo, 3400 W. Girard, Philadelphia, PA 19104

RHODE ISLAND - Jeanette Nadeau (see addresses under CT)

SOUTH CAROLINA - Lucy Segerson, North Carolina Zoo, Rt. 4, Box 83, Asheboro, NC 27203

SOUTH DAKOTA - Bob Debets (see address under ND)

TENNESSEE - Gail Karr or Cindy Pinger, Memphis Zoo & Aquarium, 2000 Galloway, Memphis, TN 38112

TEXAS - Connie Dieringer, Caldwell Zoo, P.O. Box 4280, Tyler, TX 75712

UTAH - Vacancy

VERMONT - Jeanette Nadeau (see addresses under CT)

VIRGINIA - Theresa Maas, Philadelphia Zoo, 34th & Girard , Philadelphia, PA 19104

WASHINGTON - Vacancy

WEST VIRGINIA - Theresa Maas, Philadelphia Zoo, 34th & Girard , Philadelphia, PA 19104

WISCONSIN - Wayne Hazlett, 3768 S. 89th St., Milwaukee, WI 53228

WYOMING - Holly Liappas (see address under Idaho)

DISTRICT OF COLUMBIA - Theresa Maas (see address under PA)

Province of Ontario - Vacancy

Provinces of Manitoba & Saskatchewan - Bob Debets (see address under ND)

Province of Quebec - Vacancy

Provinces of Alberta & British Columbia - Grant Tkachuk, 10139 157th St., #206, Edmonton, Alberta'

Atlantic Canada - Bernard Gallant, RR # 7, 1081 Ryan Road, Moncton, N.B., E1C 8Z4

T5P 2T9

Institutions wishing to advertise employment opportunities are asked to send pertinent data by the 15th of each month to: Opportunity Knocks/AKE, 635 Gage Blvd., Topeka, KS 66606. Please include closing dates for positions available. There is no charge for this service and phone-in listings of positions which become available close to deadline are accepted. Our phone is 1-800-242-4519 (U.S.); 1-800-468-1966 (Canada). Our FAX is 913-273-1980.

ELEPHANT KEEPER...requires at least 3 years of experience handling elephants. Responsibilities would include the care and maintenance of two female African elephants, rides, and shows, as well as care of other species. Housing available. Send resumé to: Debbie Barreda, Natural Bridge Zoo, P.O. Box 88, Natural Bridge, VA 24578.

ANIMAL KEEPER...requires one year paid zoo experience or degree in related field. Applicants should be able to work well with the public. Duties include care, feeding, health/safety of animals; exhibit maintenance/interaction with the public. Pays \$5-\$6 per hour, housing may be possible. Send resume to: Judy Austin or Cathy Short, Kentucky Down Under, P.O. Box 189, Horse Cave, KY 42749.

ELEPHANT KEEPER...a unique opportunity exists at the San Diego Wild Animal Park to be involved on the ground floor of a new system for managing elephants. The San Diego Zoo and Wild Animal Park collectively, manage one of the largest elephant herds in North America. We are currently undergoing transition in the management of our elephants moving away from the traditional free contact system towards protected contact. We currently have a Keeper position open in our Elephant Dept. and are looking for an innovative individual with a background in operant training and show performance with either marine or terrestrial animals. Elephant experience is preferred but not necessary. Hourly rate is \$12.85. This is a full-time position which includes a benefits package. Send completed application/resume before filing **deadline of Wednesday, 31 August, 1994, at 4:00 p.m.** to: Human Resources, San Diego Wild Animal Park, 15500 San Pasqual Valley Rd., Escondido, CA 92027-9614. Telephone: (619) 738-5045; FAX (619) 741-3031. Proof of eligibility to work in the U.S. will be required at time of hire.

GENERAL CURATOR...the City of Lufkin currently has an opening for a General Curator at the Ellen Trout Zoo. Applicant will be responsible for the overall maintenance of the animal collection and Zookeeper supervision. Considerable knowledge of zoo animal husbandry, current trends in zoo management and development, conservation, techniques of construction, and State and Federal laws that pertain to zoological park operation are needed. General knowledge of supervision techniques and the ability to communicate effectively with other employees. Must be able to work independently, use initiative, and write meaningful reports. Bachelor's degree in Zoology, Biology, Wildlife Management, or related field and three (3) years progressively responsible experience in an accredited zoo required. Applicant must pass City of Lufkin drug/alcohol screen and physical examination and must have or be eligible to obtain a valid Texas driver's license. To apply contact: Gordon B. Henley, Zoo Director, Ellen Trout Zoo, 402 Zoo Circle, Lufkin, TX 75904 by **31 August 1994**.

The following two (2) positions are open at North Carolina Zoological Park. For both positions a four-year-degree in zoology or a related field is preferred, as well as two year's experience at an accredited zoo. Salary for both positions is \$17,081.00 plus benefits. Send resumé and cover letter **by 31 August 1994** to: Human Resources, North Carolina Zoological Park, 4401 Zoo Parkway, Asheboro, NC 27203.

ZOOKEEPER/Elephants/Rhinos...the North Carolina Zoological Park is accepting resumés from zookeepers with elephant handling experience, willing to be part of a progressive elephant management team, working with an African bull and cows. This team of keepers, supervisors and curators is working together to develop a management plan that moves away from the traditional free contact style toward protected contact, utilizing operant conditioning and an elephant restraint device. Other responsibilities will include the care and feeding of rhinos and a variety of African plains hoofed stock and birds.

ZOOKEEPER/Primates/Carnivores...experienced primate/carnivore keeper desired with experience in gorilla husbandry preferred. Other responsibilities will include the care of a variety of other mammals, birds and herps.

Opportunity Knocks, Continued

HEAD ZOOKEEPER...the City of Eureka Head Zookeeper position supervises, assigns, reviews, and participates in the work of staff responsible for the care and management of zoo animals, and the maintenance, repair and construction of related facilities within the Zoo Division; and performs a variety of technical tasks relative to the assigned area of responsibility. The ideal Head Zookeeper candidate will have four years of increasingly responsible experience in zoo operations/animal care, including two years of lead supervisory responsibility, and the equivalent to an Associate of Arts Degree from an accredited college, with major course work in zoology, biology, or a related field. A Bachelor's degree with major course work in a related field is desired. Applicants must possess or be able to obtain a valid Class C driver's license. The eligibility list created from this recruitment may be used to fill full-time, part-time, temporary, seasonal, and grant positions. Do not submit resumés or additional material for this position. Salary \$1,850.00 - \$2,249.00/month. Application packets and a complete job announcement may be obtained from City of Eureka Personnel, Room 102, 531 K Street, Eureka City, CA 95501, (707) 441-4134. Final filing date is **Friday, 2 Sept. 1994 at 5:00 p.m.** Postmarks will not be accepted. EOE.

ZOOKEEPER...permanent, part-time position includes half-benefits. Annual salary \$10,770.00. Requires one year of paid experience in the care, handling, and feeding of animals in a zoo setting. Twelve units of accredited college level course work in animal science, zoology, biology, wildlife management, or closely related field is required. Valid California driver's license is required. Successful applicant will work all areas, work Saturday and Sunday, and get along very well with staff and public. Small, city-operated zoo featuring non-releaseable North American wildlife. Call City of Folsom Personnel Dept. at (916) 355-7202 for application forms. Submit completed forms along with letter of interest, resumé and references by **31 August 1994** to the Personnel Dept., 50 Natoma St., Folsom, CA 95630.

The following three (3) positions are available at Dreher Park Zoo, West Palm Beach, FL. Send letter and resumé for positions by **25 August 1994** to: Valerie Casper, Human Resources, Dreher Park Zoo, 1301 Summit Blvd., West Palm Beach, FL 33405-2098.

ANIMAL CARE SUPERVISOR...requires a Bachelor's degree in biology, zoology, or the natural sciences and two (2) years of experience in the care, feeding and handling of animals. Must have previous supervisory experience. Under General Curator supervision and has direct supervision of keeper staff. Supervises and participates in a variety of technical work involving the care and custody of a wide variety of animals. Salary \$19,500.00. Full benefits package.

VETERINARY TECHNICIAN...graduation from an accredited school of Veterinary Technology and experience working within a zoo or related institution. Maintenance of veterinary clinic and quarantine facility including medical supplies, capture and anesthesia equipment, medical records and reports, assist the veterinarian in surgery and medical procedures and related animal medical care. Salary \$19,500.00. Full benefits package.

ZOOKEEPERS..positions available in bird and reptile departments. High school graduate. College graduate in biological field preferred or equivalent training and experience in zoo or comparable field. Must have reptile and bird care and husbandry experience. Salary \$7.10/hr. Full benefits package.

ANIMAL CARE SPECIALIST...applicants should have knowledge of animal husbandry, animal behavior, nutrition and zoology, as well as excellent presentation and communication skills. Responsibilities include, but are not limited to: presentation of wild and exotic animals in outreach settings as well as on-site educational shows, daily animal care, exhibit maintenance and record keeping. Salary \$7.00 per hour plus benefits. Send resumé to: Six Flags Magic Mountain, Animal Dept., P.O. Box 5500, Valencia, CA 91385 or call (805) 255-4770 for more information. Position open until filled.

Opportunity Knocks, Continued

ZOOKEEPER...looking for a highly motivated, self-starter with some experience with a wide variety of animals. Degree preferred. Will be responsible for daily care of a diverse animal collection as well as exhibits and support facilities. Salary range from \$8.78 to \$11.20/hr. Send resumé by 15 August 1994. to: Paul M. Price, Zoo Director, Riverside Zoo, 1600 South Beltline Highway West, Scottsbluff, NE 69361

ZOOKEEPER II...large animal/Elephant Keeper - requires a high school diploma and two (2) years salaried Elephant experience. This individual must be highly motivated, team-oriented and most possess good oral and written communication and interpersonal skills. A good working knowledge of both free and protected contact is desired. Responsibilities will include care/maintenance of African and North American large carnivores, African and North American hoofstock, Primates and Elephants. Individuals meeting these requirements should send a resumé by 31 August 1994 to: The City of Abilene Human Resources Dept., P.O. Box 60, Abilene, TX 79604.

Antwerp Zoo Celebrates 150th Birthday

The Antwerp Zoo celebrated its 150th anniversary last year and opened Island of Bonobos, an African habitat for the pygmy chimpanzee, at Planckendael, a park with about 1,000 free-roaming animals located 40 minutes south of the city. The Royal Zoological Society of Antwerp was founded in 1843, and the zoo opened 21 July of that year. Today, together with Planckendael, Antwerp Zoo features 5,200 animals of about 920 species. The emphasis is on Africa because Belgium once had a strong presence on that continent. The zoo's nineteenth-century buildings and landscaped gardens are classified as historical monuments. Upcoming development projects include a new habitat for tigers, pumas and panthers at the zoo and a display for snow leopards at Planckendael. *Wildlife Conservation via Nature News, Vol. 10, No. 9, The Nature Book Society.*



THUMBHEAD, INC. Screenprinted THORACIC ART



Elephant Eye (natural & ash)

Shirts \$12 each (add \$3 for first shirt & \$1.50 for each additional shirt for shipping & handling) Allow 4 weeks for delivery.



Macho Skull (black)

Send check or money order to:
THUMBHEAD INC.
P.O. Box 922
Emporia, KS 66801-0922

AAZK Membership Application

Name _____ check here if renewal []

Address _____

City _____ State/Province _____ Zip _____

U.S. Members

- \$30.00 Professional/U.S.
Full-time Keepers
- \$25.00 Affiliate/U.S.
Other staff & volunteers
- \$25.00 Associate/U.S.
*Those not connected with
an animal facility*
- \$50.00 or up Contributing/U.S.
Individuals
- \$50.00 or up Institutional/U.S.
*Organizations / Institutions
(requires Board approval)*

Canadian Members

- \$35.00 Professional/Canada
Full-time Keepers
- \$30.00 Affiliate/Canada
Other staff & volunteers
- \$30.00 Associate/Canada
*Those not connected with
an animal facility*
- \$55.00 or up Contributing/Canada
Individuals
- \$55.00 or up Institutional/Canada
*Organizations / Institutions
(requires Board approval)*

International Members

- \$40.00 International
*All members outside U.S. &
Canada regardless of category*

Library Only

- \$20.00 Library
*Available only to
established libraries*

Zoo Affiliation (if any) _____

Zoo Address _____

Title _____

Work Area _____

My check is enclosed (AAZK, Inc.)

Please charge to my credit card

MASTERCARD _____ VISA _____

Card # _____ - _____ - _____ - _____

Name on card _____ Expiration Date _____

Signature _____

Mail this application to : AAZK Administrative Offices, Topeka Zoo, 635 S.W. Gage Blvd., Topeka, KS 66606-2066 U.S.A. Make checks/money orders payable to AAZK, Inc. Must be in U.S. FUNDS ONLY.

Membership includes a subscription to *Animal Keepers' Forum*. The membership card is good for free admission to many zoos and aquariums in the U.S. and Canada.



AMERICAN ASSOCIATION
of Zoo Keepers, Inc.
635 S.W. Gage Blvd.
Topeka, KS 66606-2066

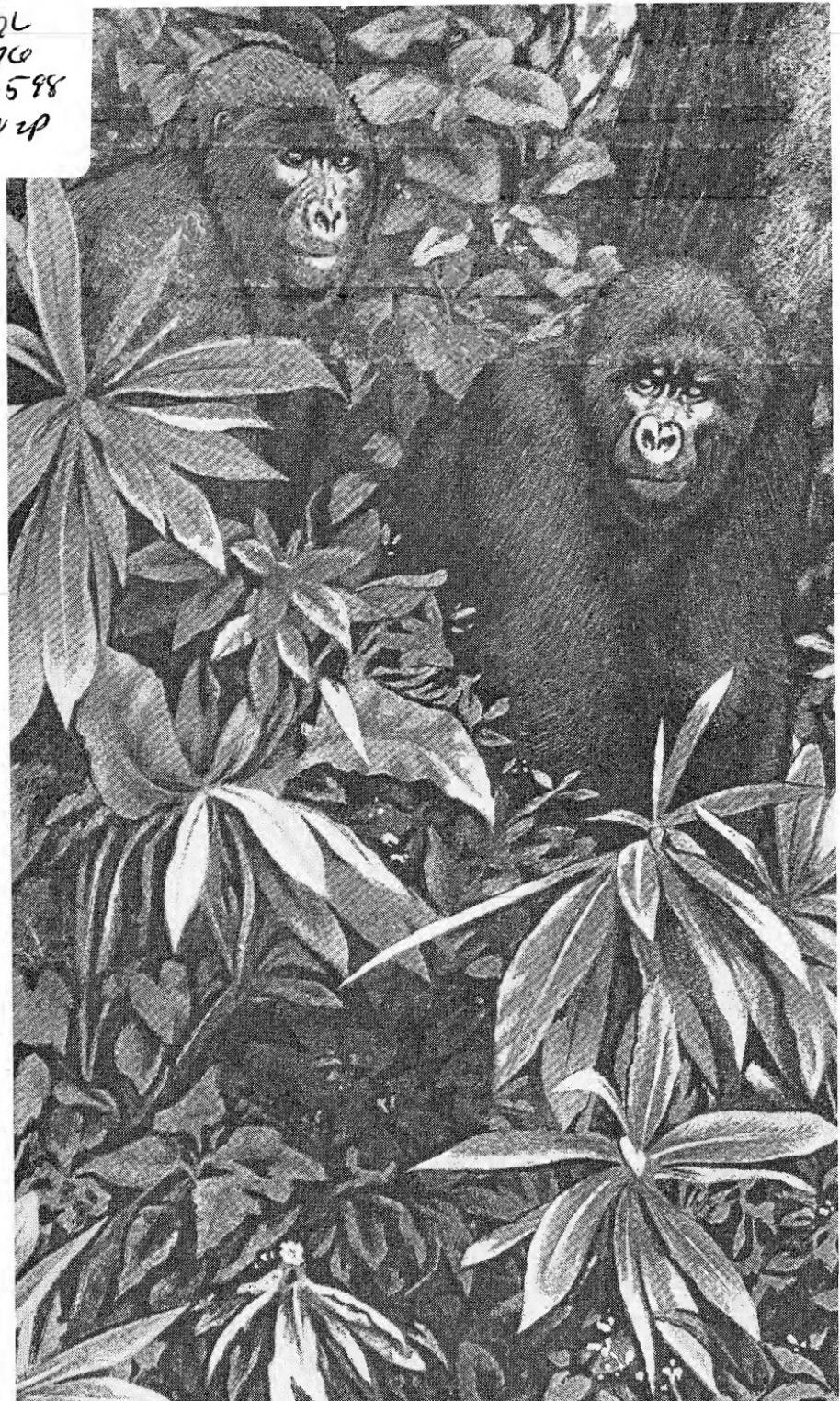
Address Correction Requested

National Zoological Park
NZP Library
Washington , DC 20008

3/95

NON-PROFIT ORGANIZATION
U.S. POSTAGE
PAID
PERMIT #646
TOPEKA, KS 66603

September 1994



QL
760
4598
N2P

Animal Keepers' Forum

ANIMAL KEEPERS' FORUM, 635 S.W. Gage Blvd., Topeka, KS 66606
Phone: 1-800-242-4519 (U.S.) 1-800-468-1966 (Canada) FAX 913-273-1980

Managing Editor: Susan Chan September 1994

Associate Editors/Enrichment Options Coordinators: Volume Twenty-one
Kayla Grams, Topeka Zoo & Gretchen Ziegler, Wildlife Safari Park Number Nine

Book Review Coordinators: Melba T. Brown, National Zoo and Tom Aversa, Franklin Park Zoo
Legislative Outlook Column Coordinator: Phyl Nilson Wojcik, John Ball Zoo

Animal Keepers' Forum (ISSN 0164-9531) is a monthly journal of the American Association of Zoo Keepers, Inc. Ten dollars of each membership fee goes toward the annual publication costs of Animal Keepers' Forum. Third Class postage paid at Topeka, KS. Postmaster: Please send address changes to:

American Association of Zoo Keepers, Inc.
Administrative Offices, 635 S.W. Gage Blvd., Topeka, KS 66606-2066
Barbara Manspeaker, Administrative Secretary

Acting Executive Director: Ed Hansen, AAZK, Inc.

BOARD OF DIRECTORS

Janet McCoy, Metro Washington Park Zoo, Portland, OR 97221-2799

President

Rachél Rogers, San Diego Zoo, San Diego, CA 92112

Vice President

Mark de Denus, Assiniboine Park Zoo, Winnipeg, Manitoba, Canada

Alan Baker, Burnet Park Zoo, Syracuse, NY 13204-2504

Ric Urban, Houston Zoological Garden, Houston, TX 77030

COMMITTEES

Nominations & Elections

Chair - Vacancy

By-laws

Chair - Vacancy

Conservation, Preservation & Restoration

Ethics

Chair - Brett Sellers, Metro Washington Park Zoo

Chair - Rachél Watkins Rogers, San Diego Zoo

Annual Conferences

Research/Grants

Coordinator - Ed Hansen, AAZK, Inc.

Chair - Susan Barnard, Zoo Atlanta

Awards

Publications Funding

Chair - Anna Michel, Metro Washington Park Zoo

David Luce, Chaffee Zoological of Fresno

Exhibit Design Resource Notebook

AAZK Chapter Logo Products

Michael Demlong, Phoenix Zoo

David Morrow, Wichita, KS

AAZK Inspection Standards Manual

Enrichment Committee

Rachél Watkins Rogers, San Diego Zoo

Chair currently being solicited

MEMBERSHIP SERVICES

L.I.N.K. Coordinator

Animal Data Transfer Form

Mark de Denus, Assiniboine Park Zoo

Bernie Feldman, Burnet Park Zoo

Zoo University List

Staff Exchange

Mike Illig, Metro Washington Park Zoo

Dale Frerking, Kansas City Zoo

Keeper Accommodations List

AAZK Historian

Todd Cleveland, Denver Zoo

Heidi Fowle, Discovery Island

International Affairs

Lesa Scheifele, Norwich, CT - Coordinator Foreign AAZK Members/Sister Organizations

Lois Johannes, L. A. Zoo - Coordinator Foreign Keeper Sponsorship Program

AAZK Training Materials

Laura Treschel, Continuing Education Coordinator, Minnesota Zoological Gardens

Christina Simmons, Keeper Training Package Coordinator, San Diego Zoo

PRESIDENTIAL ADVISORS

AAZA Liaison

Elephant Managers Association

Ed Hansen, IPP, AAZK, Inc.

Ron Ringer, San Diego Zoo

Bowling for Rhinos

CAZPA Liaison

Patty Pearthree, Indianapolis Zoo

Tom Mantil, Metro Toronto Zoo

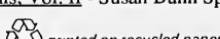
AAZK PUBLICATIONS : CONTINUING DATA COLLECTION

Zoo Infant Development Project - Harmony Frazier, Woodland Park Zoo (Mammals)

Teri Maas/Maggie Liguori, Philadelphia Zoo (Birds/Nonpasserines); Kim Livingstone, L.A. Zoo (Passerines)

Jeanne Bocconeglia, Newark Museum Mini-Zoo (Reptiles); Linelle Lone, Denver Zoo (Amphibians)

Diet Notebook, Mammals, Vol. II - Susan Bunn Spencer, Grand Rapids, MI



printed on recycled paper

Table of Contents

Scoops & Scuttlebutt.....	302
Coming Events.....	303 - 304
DOWN UNDER (Socialization of Female Tree Kangaroos).....	306 - 307
CITES to Meet in USA - What is the Future for Trade in Wild Fauna and Flora?.....	308 - 309
Births & Hatchings.....	309
Keeper's Work Trip to Madagascar.....	310
Legislative Outlook.....	311 - 312
Enrichment Options (Food Pods and Mesh Feeders for Apes).....	315 - 316
1994 AAZK Conference Pre-Conference Trip - Kansas City.....	317
AAZK Announces New Professional/Contributing Members and Information Please.....	317
Tactics to Thwart Animals from Fouling Water Bowls.....	318 - 320
Food Supplementation of North American Porcupines.....	321 - 324
Book Review (Language & Species).....	324 - 326
Chapter News.....	327 - 329
L.I.N.K. List of Regional Coordinators.....	330
Opportunity Knock.....	331 - 332
The Exhibit Design Resource Notebook - A Second Reminder.....	332
Conference '94 (Conference Daily Schedule, Registration Form, Scheduled Workshops, Day Rates, Post-Conference Trip, Hotel and Airline Info, Video Workshop)....TAN INSERT	

Information for Contributors

Animal Keepers' Forum publishes original papers and news items of interest to the animal keeping profession. Non-members are welcome to submit articles for consideration.

Articles should be typed or hand-printed and double-spaced. All illustrations, graphs, charts and tables should be clearly marked, in final form, and should fit in a page size **no greater than 15cm x 25½cm (6" x 10")**. Literature used should be cited in the text (Brown, 1986) and alphabetically in final bibliography. Avoid footnotes. Include scientific name of species (as per ISIS) the first time it is used. Thereafter use common name. Use metric system for weights and measurements (standard equivalents may be noted in parenthesis). Use the continental dating system (day-month-year). Times should be listed as per the 24-hour clock (0800, 1630 hrs. etc.). Black and white photos **only** are accepted. Color slides should be converted to black and white prints (minimum size 3" x 5") before submission. Clearly marked captions should accompany photos. Please list photo credit.

Articles sent to *Animal Keepers' Forum* will be reviewed by the editorial staff for publication. Articles of a research or technical nature will be submitted to one or more of the zoo professionals who serve as referees for *AKF*. No commitment is made to the author, but an effort will be made to publish articles as soon as possible. Lengthy articles may be separated into monthly installments at the discretion of the editor. The editor reserves the right to edit material without consultation unless approval is requested in writing by the author. Materials submitted will not be returned unless accompanied by a stamped, self-addressed envelope. Telephone or FAX contributions of late-breaking news or last-minute insertions are accepted as space allows. However, long articles must be sent by U.S. mail. Phone is (913) 272-5821 Ext. 31. FAX (913) 273-1980.

DEADLINE FOR EACH EDITION IS THE 15TH OF THE PRECEDING MONTH

Articles printed do not necessarily reflect the opinions of the
Animal Keepers' Forum editorial staff or
the American Association of Zoo Keepers, Inc.
Publication does not indicate endorsement by the Association.

Items in this publication may be reprinted providing credit to this publication is given and a copy of the reprinted material is forwarded to the editor. Reprints of material appearing in this journal may be ordered from the editor. Back issues are available for \$2.00 each.

This month's cover features the highly endangered Mountain Gorilla (*Gorilla g. beringei*) which is found only on the mist-shrouded volcanic mountain ranges of Rwanda, Uganda and Zaire. Somewhat larger than the lowland gorilla species, Mountain gorillas have longer, shaggier hair as well. They live in family groups with a dominant silverback male as its leader. The main threats to these endangered great apes is poaching and encroachment on and degredation of their habitat. The artwork is from the book *Animals in Jeopardy*, one of a large series of books published by the Young Discovery Library. Michael Dillon, owner of this company and an AAZK Associate member, has offered AAZK/AKF gratis use of the illustrations from these remarkable children's books. All inquiries on the Young Discovery Library should be sent to: P.O. Box 229 - Ossining, NY 10562. Thanks, Michael!

Scoops and Scuttlebutt

Mid-Atlantic Reptile Show Scheduled

submitted by Rosemary Krussman, Assistant ESP Coordinator

The Second Annual Mid-Atlantic Reptile Show will be held in Baltimore, MD at the Maryland State Fair Grounds and the Timonium Holiday Inn on the weekend of 17-18 September 1994. Sponsored by The Maryland Herpetological Society, proceeds from the show will be used to purchase rainforest acreage through the Ecosystem Survival Plan. Last year's event raised \$17,000.00 which was donated through the Conservation Parking Meter at the National Aquarium in Baltimore.

The show features the sale of captive-bred reptiles, equipment, books and lectures by local and nationally-known reptile professionals. Dr. Daniel H. Janzen, professor at the University of PA, is this year's feature lecturer. Other speakers will include Ron Markel (author of "Kingsnakes and Milksnakes"), Trooper Walsh and Roger Rosscoe (Komodo Dragons at the National Zoo) and Anthony Wisnieski, Curator of Reptiles at the Baltimore Zoo. For more information please contact: Tim Hoen, Show Coordinator at (410) 557-6879.

From the AAZK Historian

submitted by Heidi Fowle, *Discovery Island*

Dear AAZK Chapters,

You can change history . . . if you take the initiative to document this year's events for your local AAZK Chapter. Information in any form is acceptable - from detailed reports to a short note about your Chapter's events (or even lack thereof) and/or business. The year is drawing to a close. As yet, only a handful of Chapters have responded. Don't wait for someone else to volunteer. We can all make a difference in AAZK. Don't let your efforts go unrecorded. Future generations of zoo keepers are depending on you!

Help preserve AAZK's history by sending all information, photos, samples of Chapter products, etc. to: Heidi Fowle, AAZK Historian, 2515 Emma St., Orlando, FL 32806.

Chapter Logo Registry Project Progressing Well

We have received a fairly good return on the survey which was sent to each Chapter to determine whether or not they have a logo, its designer, date adopted, etc. There are still a number of Chapters that have not responded and we would encourage you to return the request form ASAP. We hope to publish a new Chapter Logo Registry early in 1995 and it will be sent gratis to all active AAZK Chapters. We want to make it as complete as possible, so if you haven't returned your information, don't delay!



Coming Events

14th Annual Conference of the Association of Zoo Veterinary Technicians

September 25-29, 1994

Cleveland, OH

Held at the Cleveland Metro Parks Zoo. If you would like more information, please contact Rhonda Kesak, Cleveland Metro Parks Zoo, 3900 Brookside Park Drive, Cleveland, OH 44109; (216) 661-6500, ext. 259.

Association of Avian Veterinarians

Sept. 27 - Oct. 1, 1994

Reno, NV

Conference site is the Nugget Hotel. The program will offer a wide variety of continuing education opportunities with concurrent programming to satisfy a broad range of interests. A Core Seminar, Basic Avian Medicine Symposium, Main Conference, and Practical Labs will be included. For further information contact the AAV Conference Office, 2121 So. Oneida St., Ste. 325, Denver, CO 80224-2552, (303) 756-8380, FAX (303) 759-8861.

15th Annual Conference of the Elephant Managers Association

Sept. 29 - Oct. 1, 1994

Toronto, Canada

Hosted by the Metro Toronto Zoo and to be held at the Guild Inn. Registration is \$89.00 (Canadian Funds). For further information contact: John Stoner, Animal Care Manager, Metro Toronto Zoo, P.O. Box 280, West Hill, Ontario, Canada M1E 4R5, Tel: (416) 392-5965,

1994 AAZK National Conference

Oct. 9-13, 1994

Omaha, NE

Hosted by the Omaha Chapter of AAZK. Conference will include paper sessions, poster presentations, workshops, Zoolympics, a day at the Henry Doorly Zoo, and several social functions. Watch for information and registration forms in the tan inserts in AKF. Or for further information contact Diane Callaway or Lisa Cuevas at the Henry Doorly Zoo.

Small Felid Workshop

Oct. 13-16, 1994

San Diego, CA

Dr. Jill Mellen, Susan Millard and Pat Quillen will join with other specialists in presenting a small cat workshop to be held at the facility of SOS CARE (near the San Diego Wild Animal Park), which presently houses 50 plus small cats of varied species and sub-species. Early enrollment is encouraged as attendance will be limited for the benefit of the animals and participants. For further information contact: Pat Quillen, SOS CARE, 15453 Woods Valley Rd., Valley Center, CA 92082. Phone: (619) 749-3946; FAX: 619-749-1324 or call Susan Millard at (619) 738-5085.

American Association of Zoo Veterinarians

October 23-27, 1994

Pittsburgh, PA

To be held at the Hyatt Regency Hotel. Workshops will take place on Sunday, 23 October. Conference will include sessions on reptiles and amphibians, nutrition, immobilization, avian species, primates, clinical and gross pathology, environmental enrichment, aquatic animal medicine, hoofstock and large mammals, carnivores and small mammals and

Coming Events, Continued

case reports. In addition there will be both a student and graduate student competition and a poster session. For more information contact: Wilbur Amand, VMD, AAZV Executive Director, Philadelphia Zoo, 3400 W. Girard Ave., Philadelphia, PA 19104-1196; phone (215) 387-9094; FAX (215) 387-2165.

Association of Reptilian and Amphibian Veterinarians (ARAV)

October 22-23, 1994

Pittsburgh, PA

To be held in conjunction with the AAZV Conference listed above. This is the first conference for the ARAV and will include a general lecture session, a case report session and workshops on (1) basic reptile and amphibian medicine; (2) advanced reptile and amphibian medicine; and (3) pathology/necropsy techniques. For further information and registration materials contact Wilbur Amand at address given under AAZV listing.

Third Annual National Watchable Wildlife Conference

October 26-29, 1994

Burlington, VA

Theme is "Take A Closer Look". Conference will include workshops, panel discussions and hands-on interactive sessions. Field trips for Vermont wildlife viewing included. For further information contact Hannah Kirchner or David Case at National Watchable Wildlife Conference, 607 Lincolnway West, Mishawaka, IN 46544 Tel: (219) 258-0100.

The Exploitation of Mammals

November 25-26, 1994

London, England

A symposium organized by The Mammal Society and Universities Federation for Animal Welfare. The major theme concerns the various ways in which mammal populations are exploited world-wide, the concept of sustainable use and the resulting welfare considerations for animals involved. Program includes sessions on Mammal Game Ranching, Mammal-oriented Ecotourism; Mammals in Zoos and Circuses; Sport Hunting of Mammals; and Mammal Wildlife Trade and Conservation. For further information contact Victoria Taylor at UFAW, 8 Hamilton Close, South Mimms, Potters Bar, Herts, England EN6 3QD.

10th International Conference on Bear Research & Management

July 16-20, 1995

Fairbanks, AK

Sept. 11-14, 1995

Mora, Sweden

Theme is "Bears - Their Biology and Management." For both sessions, persons desiring to present papers must submit summaries of their proposed presentations. Summaries are due by 30 September 1994 for Fairbanks and by 30 October 1994 for Swedish-Norwegian sessions. For further information contact: Fairbanks - Harry Reynolds, 1300 College Rd., Fairbanks, AK 99701-1599, tel: (907) 452-1531, FAX: 907/452-6410; Sweden - Anders Bjarval, Naturvardsverket, @-171 85 Solna, Sweden, tel: Int. code + 46 8 799 10 00, Telfax: Int. code + 46 8 799 14 02.



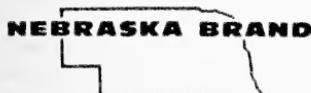


Quality exotic animal diets

SPECTRUM

**Nutritionally balanced
Fixed formulation • Economical**

When you need a complete line of high-quality dry and frozen animal diets for your feeding program, call Animal Spectrum.



Frozen feline diets

Frozen bird of prey diets

Frozen canine diet

*Chunk and chopped horsemeat,
hearts, livers, rib, shank,
knuckle bones, and tailbones*



Banana flavored psittacine/primate, 20% protein, dry
Banana flavored primate, Pro-Plus 25% protein dry
Leaf Eater primate dry *Omnivore dry*
Llama Vitamins & Minerals dry *Polar Bear dry*
Marmoset/Tamarin dry *Ratite dry*
Hoofstock supplement, with Selenium dry

BROOD-RITE HEATERS

*Bulbless heaters—nothing to break
Safe around all animals and
bedding material.
Even heat distribution in 240, 500,
or 750 wattages.*

One call does it all

TOLL
FREE

**TOLL
FREE** **1-800-228-4005**

FAX 308-534-7015

Animal Spectrum, Inc.
P.O. Box 721
North Platte, NE 69101-0721



DOWN UNDER

Coordinated by
Judie Steenberg, Keeper
Woodland Park Zoo
Seattle, WA

DOWN UNDER....is an information column about Australasian animals. While there are a number of Keepers who work in Australasian Units, or routines, oft times a Keeper will have a few species

of animals from the Australasian zoogeographical region on their string or routine. It is hoped this section will contain information on birds, mammals and reptiles.

This column is intended to:

- share experiences and information to improve the care and management of Australasian animals.
- seek information and advice on problems that occur.
- serve as a forum through which to make comment, to ask questions, to critique, or to verify information.

Please send your materials (a question, a paragraph or an article) directly to *Animal Keepers' Forum*, Topeka Zoological Park, 635 S.W. Gage Blvd., Topeka, KS 66606-2066, Attn: Susan Chan.

The following information was originally requested for the Tree Kangaroo Husbandry Notebook (TKHN) update.

It is important in the management of Tree kangaroos (*Dendrolagus spp.*) to determine when females are carrying a joey. There are two methods of pouch checking. The standing pouch check is done when the female Tree kangaroo allows inspection of her pouch while she is standing in front of the keeper. Another method is done while physically restraining the female. The second method requires three (3) keepers to insure an efficient and safe pouch checking procedure for the animals and the keepers. The following article was written by John Creviston, at the request of the Tree Kangaroo Species Survival Plan (TK-SSP). In addition to training two adult female Matschie's tree kangaroos, a female joey born and raised at the Calgary Zoo was also socialized to allow keepers to look into her pouch. She is currently at the Metro Toronto Zoo and not only allows a standing pouch check, but keepers are also able to trim her claws without restraint.

*Judie Steenberg, Action Plan Facilitator, Tree Kangaroo SSP
Woodland Park Zoological Gardens, Seattle, WA*

SOCIALIZATION OF FEMALE TREE KANGAROOS

By John Creviston, Zookeeper/Australia/Nocturnal
Calgary Zoo, Calgary, Alberta, Canada

Probably the two most important factors in socializing a Tree Kangaroo are trust and limited opportunity for flight. Both adult female Matschie's tree kangaroos (*Dendrolagus matschiei*) housed at the Calgary Zoo were considered quite wary and unapproachable. Our most recent female was nine years old when she entered our collection and was quite an adversary to staff at our quarantine facility.

When she arrived at the Australia section from quarantine, she was accompanied by tall tales of her ferociousness, strength, and size. In reality, she was actually a little bit smaller than our previous female and was quite normal in behavior, being at first under stress and unsure of her surroundings.

At first the female Tree kangaroo is not approached but rather a normal work routine is carried on in her presence although movements should be slow and deliberate. Next, an elbow is slightly extended in her direction for a few moments during normal work routine. After the Tree kangaroo is comfortable with each step, it is then time to advance to the next step.

After the female is at ease with the extended elbow, slowly extend a full arm in her general direction; again, when she is comfortable, lengthen the time in this position with fingers out but not stiff. Allow her to smell the hand if she wants then back off if she becomes nervous. When ready, touch her chest fur and gradually touch harder and for longer periods. Eventually, run your fingers down to the pouch opening and, if successful, into the pouch itself. Ultimately, it should be possible to use two hands -- one to open the pouch and the other to distract the female or help hold the pouch open for inspection. Some manipulation of the joey, if present, may even be possible (e.g. to determine sex). It should be noted that clean (warm) hands are essential for inspection. Also it is very important to not look directly at the female Tree kangaroo during any of this process and certainly not to stare.

While I can't guarantee success with every enclosure, every animal, or even every keeper and his/her infinite combinations for socializing Tree kangaroos, I can suggest that trust is the basic component.

Good luck with your Tree kangaroo.



**SPECIAL OFFER FOR AAZK MEMBERS
EXTENDED THROUGH OCTOBER 31, 1994**

A GUIDE TO AMERICAN ZOOS & AQUARIUMS

by Darcy & Robert Folzenlogen

Visitor Information, Special Exhibits, Seasonal Festivals, Breeding
Achievements & Research Activities for 173 Institutions
Recommended in the AAZK and AZAD journals!

Suggested Retail Price: \$16.95

Now only \$10.00 for AAZK members. Send this ad + \$10.00 to
Willow Press, 6053 S. Platte Canyon Rd., Littleton, CO 80123

CITES TO MEET IN USA

FORT LAUDERDALE 1994: What is the Future for Trade in Wild Fauna and Flora?

GENEVA, 25 July 1994 -- The 9th meeting of the Conference of the Parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES or the Washington Convention) will take place in the United States in Fort Lauderdale, FL , from 7 -18 November 1994.

Between 2,000 and 3,000 expected participants will be discussing the future of the wild fauna and flora of our planet. In addition to the representatives of the 122 member States to the Convention, representatives of governmental and international organizations as well as of national and international conservation organizations and users of the fauna and flora (traders, hunters, etc.) will try to find ways to prevent international trade from jeopardizing our natural heritage.

Among the 120 proposals from States to include species in Appendix I (international trade banned) or in Appendix II (controlled international trade) of the Convention, or to transfer species from one Appendix to the other, some of them will most likely create lively debates. Among these proposals, some examples are:

- The African elephant (transfer of 2 populations from Appendix I to Appendix II);
- The Rhinoceros (transfer of a population of white rhinoceros from Appendix I to Appendix II, debate on the future conservation of the rhinoceroses and on the problem of trade in rhinoceros horn);
- The Minke whale (proposal of Norway to transfer populations of the species from Appendix I to Appendix II); and
- Tropical timber (e.g., African mahogany).

In each of these cases, those who support a ban on trade are opposed to those who support the possibility of trading, under CITES control.

However, apart from these species, the 120 proposals deal with the consideration of the status of about 200 other species, such as Pangolins (the scales of which are used in oriental medicine), the Hippopotamus (the trade in ivory teeth is increasing), the Vicuna (a member of the camel family whose wool is in great demand), the Saiga antelope (whose horns are used in oriental medicine), the Cave swiftlets (whose nests are used to make soup), Parrots, Crocodiles, Aloes, Cacti and medicinal plants.

Another issue may cause great controversy too, namely the criteria to include species in the appendices of the Convention. The main question is to determine the level of threat at which a species should be subject to the prohibition on international trade or should be subject to controls of the Convention. This is, in a way, a problem of defining limits.

The Conference will also examine a Secretariat report on Convention infractions which, this year again, includes over 100 pages. Smuggling, false permits and tricks to legalize illegal specimens will be studied in order to find ways to stop, or at least to curb, illegal trade, from which traders and middle men earn large amounts of money.

Two important problems will always be underlying the debates: how to put the idea of sustainable use of wild fauna and flora into practice and how to apply CITES. Once again,

CITES to Meet in Ft. Lauderdale, Continued

a compromise will have to be found between exporting countries (usually from the South) whose fauna and flora are resources but that often have little means for controlling its export, and the importing countries (usually from the North), that use these resources.

For further information, please contact:

Jean-Patrick Le Duc, Infraction Prevention and Information

Officer CITES Secretariat

15, chemin des Anemones

1219 Chatelaine, Geneva

Switzerland

Telephone: (41) 22 979 91 30/29/39/40

Telefax: (41) 22 797 34 17

--UNEP News Release via GreenDisk, Vol. 3, No. 1, June/July 1994



SHOW YOUR WILD SIDE

It's Easier Than You Think...With Our

ADDRESS LABELZ STATIONERY & RUBBERSTAMPS

Uniquely Personalized Stuff for Animal Lovers!

JAZZY NEW 1994 CATALOGUE!

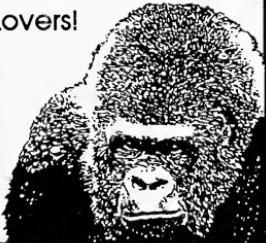
Avail. for \$3US or \$4CAN

Featuring 280 Nature Designs (over 170 are new!), with
22 Lettering Styles and an extended product line

LIXX LABELZ

Box 32055-AK94, 2619 14th St., S.W.

Calgary, Alta. Canada T2T 5X0 (403)245-2331



SEND FOR OUR NEW CATALOGUE TODAY

Births & Hatchings



Kansas City Zoo (K.S., MO)...announces the following B&H for May-July 1994:

Mammals - 0.1 Reeve's muntjac (*Muntiacus reevesi*) [1st for zoo and pair]; 0.2 Red panda (*Ailurus fulgens*) [SSP-CITES II - 1st for pair and this female; both are being parent-raised]; 0.0.1 Chimpanzee (*Pan troglodytes*) [SSP]. submitted by Shirley Williams, Zookeeper, Kansas City Zoo.

Lion Country Safari (West Palm Beach, FL)...announces the birth a 75-pound 0.1 Southern white rhinoceros (*Ceratotherium simum*) [E/SSP]. This marks only the second of this species to be born in the U.S. this year. It is the 16 White rhino birth in the facility's history. The dam is Aggie, age 26 years; the sire, Pops, age 12 years. The infant was named "Comet" as she arrived during the comet bombardment of the planet Jupiter. *Lion Country Safari News Release*.



INTERACTIVE MANAGEMENT OF WILD AND CAPTIVE ANIMALS

KEEPER'S WORK-TRIP
to
MADAGASCAR

including stop-overs at
JERSEY WILDLIFE PRESERVATION TRUST
and
MAURITIUS

Finally! A low cost trip for professional animal keepers with a special interest in the fauna and flora of "the Great Red Island." This is a special project through the Magagascar-California Alliance (MCA) and the Madagascar Fauna Group (MFG) designed to initiate an exchange of knowledge and skills beneficial to man and nature in both Madagascar and North America.

This is another step in our long journey to provide a link between the animals we manage in captivity and the management taking place on both wild and captive populations in their native country.

This is not a pleasure trip. Participants will be working physically and mentally to facilitate change in a combination of critical areas in Madagascar. Included in this trip will be a visit to the Jersey Wildlife Preservation Trust (Jersey Zoo) off the coast of France. This is the first zoo to concentrate only on critically endangered animals. A stop-over on the Island of Mauritius will also be included so that we can observe some of their endangered species projects.

The first keeper work-trip to Madagascar will leave around the first of November, 1994. I need to know of your interest as soon as possible. This trip will last approximateley 6 weeks. I have more information for those seriously interested including applicant's requirements, trip cost and possible funding. Please call me at (415) 331-9551 or write to me at 2562 Noriega St., #201, San Francisco, California 94122 FAX: (415) 681-6274

If you planning to attend the national conference in Omaha, look for listings of the keeper work-trip workshop. I look forward to hearing of your interest!

Sincerely,



Barbara Palmer
Keeper Project Coordinator
Madagascar-California Alliance

Legislative Outlook

*Compiled by
Phyllis Nilson-Wojcik
Legislative Advisor*



Conservation Organizations Work Together for Environment

I recently received a unique letter. It was addressed "Environmentalist" and was signed by the President or Executive Director of 15 of the leading environmental/conservation organizations in the country (please see list below). These organizations set aside personal differences in their beliefs to band together for one common goal - to defend our environmental laws. As is true of any serious undertaking, fragmenting only weakens the whole. By working together, these organizations hope to send a serious message to us, as conservationists, and to our legislators. These organizations are asking for our help.

The opponents of strong environmental laws have reduced their argument to three simple, but misleading anti-environmental messages: 1) **Takings** - Industry claims environmental laws take private property unfairly. In reality, they want us to pay them not to pollute our air and water and not to destroy our wildlife and public lands; 2) **Cost-benefit and comparative risk analysis** - Polluters want to force the government to justify the benefits of environmental safeguards in monetary terms. It is impossible to put a price tag on our healthy ecosystems and our right to breath; 3) **Unfunded federal mandates** - Many states and cities want environmental laws to be voluntary unless the federal government pays for all state and local compliance costs.

We are all in this together, whether we are a bird-watcher, a duck hunter, a zookeeper, a hiker, or simply a person choosing to drink clean water. Their efforts to weaken these laws have sophisticated agendas, some even have "earth friendly" sounding names. Included below are some points you may wish to mention when writing your legislators regarding these issues, explaining why you strongly oppose these items:

Takings - Radical property rights advocates argue that any government action that lowers the value of private property in any way requires compensation, and that such rules should be set by Congress instead of the courts. They want the government to pay them not to pollute. As a response - If this radical interpretation of the Fifth Amendment (which protects private property from unfair confiscation) is accepted, there would be no zoning, environmental or public health and safety laws, however reasonable. The average taxpayer would be forced to pay a small number of landowners not to pollute, or not to destroy the public's fish, wildlife, national parks and other resources.

Cost benefit analysis and risk assessment - As a response - The supporters of extensive cost-benefit analysis often fail to consider the costs of not protecting our environment: i.e., health care costs and lost wages when environmental degradation makes people sick; depleting natural resources and making communities less attractive to wide variety of businesses; damage to property that is adjacent to polluters.

Unfunded Federal mandates - As a response - The public, you as a citizen, wants clean air to breath, clean water to drink, and healthy wildlife populations for your particular recreation. Whether it comes from the federal, state or local taxes does not matter.

Legislative Update, Continued

Write in your own words:

President Bill Clinton
The White House
Washington, D.C. 20500

U.S. Senate
Washington, D.C. 20510

U.S. House of Representatives
Washington, D.C. 20500

This information was provided, along with a Citizen Action Guide, by the following groups:

American Oceans Campaign, Center for Marine Conservation, Defenders of Wildlife, Environmental Action Foundation, Friends of the Earth, Greenpeace USA, Inc., League of Conservation Voters, National Audubon Society, National Parks and Conservation Association, National Wildlife Federation, Natural Resources Defense Council, Sierra Club, Sierra Club Legal Defense Fund, The Wilderness Society, and Zero Population Growth.

Takings Amendment Added Onto Safe Drinking Water Act

On 18 May, the Senate approved a "takings" amendment to the Safe Water Drinking Act reauthorization bill (S. 2019). The amendment, which passed on a voice vote, was offered by Sen. Dale Bumpers (D-AR) as a compromise substitute for a stronger version pushed by Minority Leader Robert Dole (R-KS). The amendment requires that all federal agencies must complete a "takings impact analysis" before suggesting any action that "is likely to result in a taking of private property..."

This sweeping requirements sets up new bureaucratic hurdles which will slow down enforcement of environmental and other regulations. Sen. Patrick Leahy (D-VT) estimated that the necessary reports could cost the federal government over \$150 million a year, and said that the "extreme theory of what constitutes a taking would undermine everything from child labor laws to public health."

With this victory in hand, taking proponents are not setting their sights on a larger goal: weakening wetlands protection under the Clean Water Act by attaching takings amendments to that bill during reauthorization.

>*National Wildlife EnviroAction July/August 1994*

House Increases E.S.A. Budget, Makes Cuts Elsewhere

On 23 June, the House of Representatives approved legislation giving the U.S. Forest Service and the agencies within the Interior Department a budget of \$13.06 billion for the next fiscal year - about \$194 million less than current funding, and \$230 million less than the administration had requested.

The bill brings both good news and bad. The total budget of the U.S. Fish and Wildlife Service would drop from \$679.7 million to about \$636 million, but the resource management budget would increase by over \$14 million, allowing more money for enforcement of the Endangered Species Act. The National Biological Survey should receive \$167.2 million, the same amount as last year.

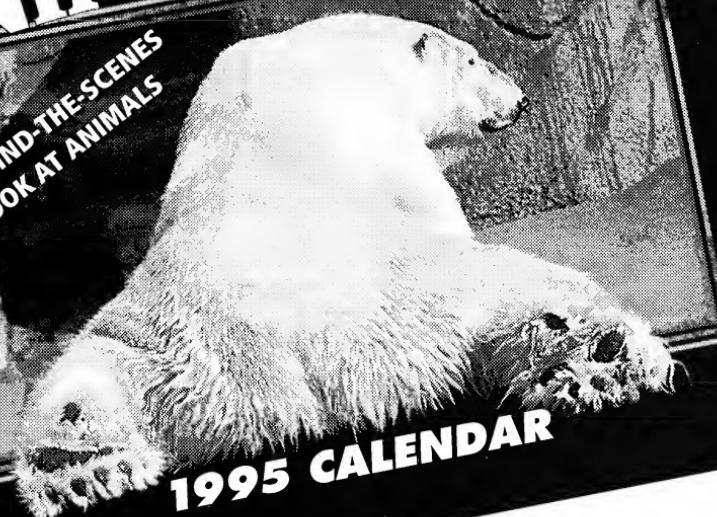
While the House dropped appropriation levels for the Interior Department, they raised the Environmental Protection Agency's budget to \$7 billion, \$351 million over last year, but less than half of the requested increase. Funding for environmental programs would be cut by \$91 million and Superfund money would be cut by \$78 million. The bill would provide \$82 million more than the administration requested for drinking water treatment and water pollution controls. Appropriations for both EPA and Interior programs are now under discussion in the Senate.

>*National Wildlife EnviroAction, July/August 1994*

ANIMAL BUNS

A BEHIND-THE-SCENES
LOOKAT ANIMALS

1995 CALENDAR



Hippopotamus

hinders. Peacock posteriors.

Rhinoceros rumps. Polar bear behinds. When it comes to the backside of animals, beauty is most definitely in the eye of the beholder. Each hind-end is unique in its own way. The 1995 Animal Buns calendar presents a behind-the-scenes perspective of a dozen of nature's cheekier creatures. Whether the animal fannies are colorful, ornamental, symmetrical, furry, feathery, cute, shapely, or humongous, this bun-of-a-kind calendar illustrates tail-ends in all of their glory and glamour.

Fifty percent of the proceeds from the 1995 Animal Buns calendar is being donated to global wildlife conservation projects, and the other fifty percent benefits keeper education and professional development programs of the San Diego Chapter of the American Association of Zoo Keepers (AAZK), the producer of the calendar.

Suggested retail of the calendar is \$11.95. Calendars can be purchased individually or zoos, gift shops and AAZK Chapters can purchase the calendar wholesale at a discount of 55%; price includes freight. Price is not printed on the calendar, and the calendar carries a scannable UPC code on the backside.

Don't Get Left Behind...

Make sure you're prepared when your customers come in asking for the calendar everyone is talking about. AAZK Chapters can purchase the calendar wholesale, sell them retail, and keep the profit—an excellent Chapter fundraiser! Four-color sales sheets are available for imprint with your Chapter, giftshop or zoo name. In addition, your chapter or zoo giftshop will be listed as an outlet for purchasing the calendar. Send or fax your order in now—this calendar will sell out. And remember, every penny earned benefits either conservation or keepers. It's truly a win-win product!



Date: _____

Buyer's Name: _____

Buyer's Signature: _____

Billing Address: _____

City • State • Zip: _____

Phone: () Fax: ()

Resale number: _____

Ship to Attn: _____

Zoo/Giftshop/AAZK Chapter: _____

Street Address: _____

City • State • Zip: _____

	Item#	Description	Price Each	Quantity	Total \$ Amount
1	42349-R	1995 Animal Buns Calendar (retail)	\$ 11.95		
2	42349-W	1995 Animal Buns Calendar (whlse)	5.38		
		Shipping (no charge in USA)	n/c		

Send Orders To:

Andrew Simmons, Secretary
San Diego Chapter of AAZK
c/o the San Diego Zoo, P.O. Box 551
San Diego, CA 92112-0551 U.S.A.
Telephone: (619) 231-1515, extension 4672

Or Fax Your Order To:**(619) 441-9130****Total Amount \$**

Net 30 days to approved zoos, gift shops
and AAZK Chapters

**A MINIMUM ORDER OF 25
CALENDARS REQUIRED FOR
WHOLESALE ORDERS.**



*By Kayla Grams, Topeka Zoo and
Gretchen Ziegler, Wildlife Safari Park*

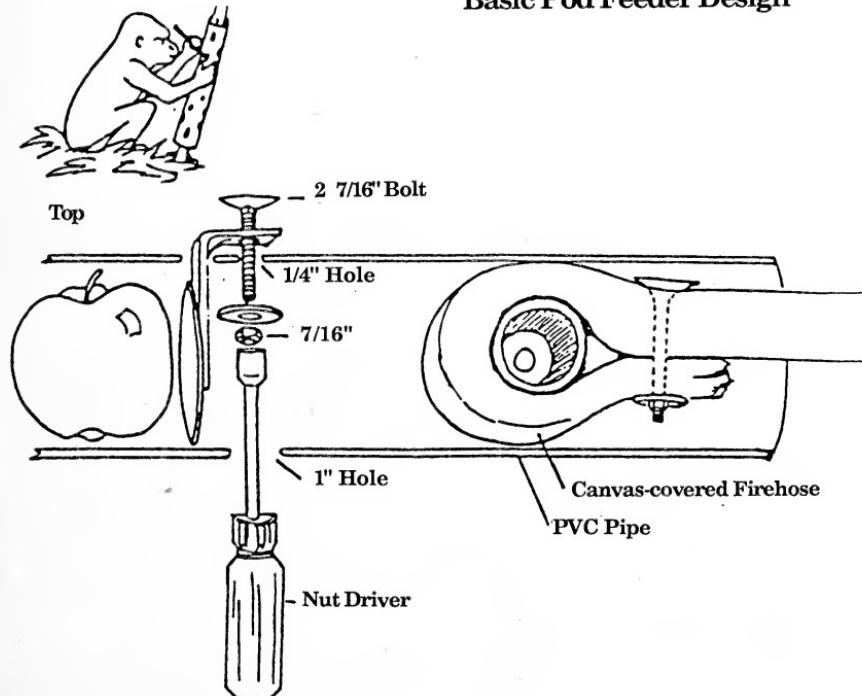
Food Pods and Mesh Feeders

Food pods are a recent innovation and are constructed primarily of PVC tubing which, in turn, is fastened to nets or firehose. The object is to extract foods which have been placed in the tubes via internalized, gorilla-proof, access seals. The variation of hole sizes as well as the type of food put in the tubes offers considerable challenge to apes and considerable ingenuity in the methods of extraction are seen.

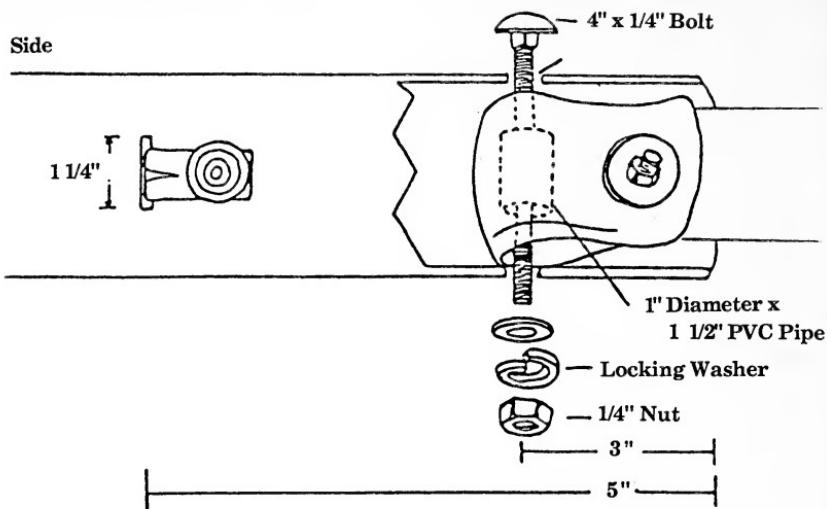
The following device is utilized by gorillas at the Calgary Zoo, and could possibly be used by other apes as well.

-- Submitted by Rob Sutherland, Keeper
Calgary Zoo, Alberta, Canada

Basic Pod Feeder Design

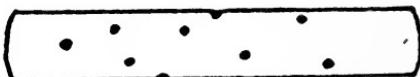


Enrichment Options, Continued

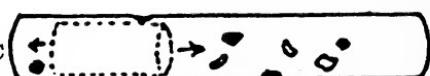


Pod Variations

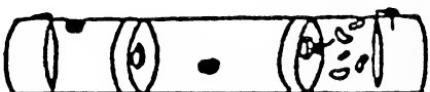
Seed Feeder
Holes 1/4" - 3/4" Diameter



Sliding Inner Pod
Insert smaller diameter piece of PVC



Wood Baffles in Pod



Substrate in Pod
Insert straw, wood wool, leaves...

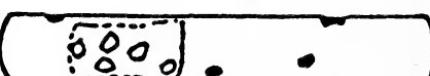


"Popsicles"

Freeze-Whole fruit/veggies

- Tea
- Juice
- Seeds
- Fruit/veggie pieces
- Flavors/Spices

+ H₂O



**1994 AAZK National
Conference
Omaha, Nebraska
October 9 - 13, 1994**

AMERICAN ASSOCIATION OF ZOOKEEPERS



"A KEEPER'S PERSPECTIVE"

Conference Schedule

SUNDAY, OCTOBER 9

All-day Registration

Open Forum Board Meetings

National Committee Workshops

Evening Event: Icebreaker, featuring live dance band, The Labels, and free munchies/beverages.

MONDAY, OCTOBER 10

Conference Welcome

Morning and Afternoon Paper Sessions

All-Day Poster Viewing

Exhibit Room Open All Day

Evening Workshops/Evening Video Workshop

Evening Event: Music and Dancing at The RANCHBOWL club

TUESDAY, OCTOBER 11

Morning Workshops

Morning Poster Viewing

Exhibit Room Open in Morning

ZOOLYMPICS at Heartland Park in Afternoon

Free Time for Touring the Downtown "Old Market"

Evening Events: SILENT AUCTION and Blues Night with free munchies/beverages

WEDNESDAY, OCTOBER 12

Morning Workshops

Morning Poster Viewing

Exhibit Room Open in Morning

ZOO DAY: tour Omaha's Henry Doorly Zoo, and take in workshops and behind-the-scenes tours; barbecue dinner and pow-wow, featuring the Intertribal Dancers.

Evening Event: COUNTRY WESTERN NIGHT at the hotel, with free
munchies/beverages

THURSDAY, OCTOBER 13

Morning Paper session

Morning Poster Viewing

Exhibit Room Open in Morning

AWARDS LUNCHEON

General Membership Meeting in Afternoon

Evening Events: FINAL BANQUET, LIVE AUCTION, and MARDI GRAS DANCE,
featuring Omaha's premier dance band, The Rumbles, and free
munchies/beverages.

**1994 AAZK National Conference
Omaha, Nebraska
October 9 - 13, 1994**

CONFERENCE REGISTRATION FORM

Name _____

Address _____

City _____ State/Province _____

Zip/Postal Code _____ Phone (_____) _____

Zoo Affiliation _____

Position/Title _____

AAZK Chapter _____

Number of AAZK Conferences you have attended _____

AAZK Committee Member? _____

Presenting a Paper?	YES _____	NO _____
Conducting a Workshop?	YES _____	NO _____
Participating in Zoolympics?	YES _____	NO _____
Bringing an Auction Item?	YES _____	NO _____

Vegetarian? YES _____ NO _____ TYPE _____

T-Shirt ? YES _____ NO _____

SIZE: SM MED LG X-LG

Arrival Date and Time: _____

CONFERENCE FEES * (Does Not Include Cost of Conference Proceedings)

AAZK Member or Spouse	\$100.00	_____
Non-Member	\$110.00	_____
Late Fee (after Sept. 1, 1994)	\$ 10.00	_____

TOTAL FEE ENCLOSED \$ _____

* Fees include a \$15.00 contribution to AAZK National.

Roommates are the responsibility of each registrant.

Please make checks payable to: AAZK Conference '94

Return This Form and All Fees To:

Carla Wieser
Omaha Chapter AAZK
Omaha's Henry Doorly Zoo
Omaha, NE 68107

AMERICAN ASSOCIATION OF ZOOKEEPERS



"A KEEPER'S PERSPECTIVE"

CONFERENCE '94 . . .

. . . will feature a wide array of paper, poster, and workshop topics, with something of interest for everyone . . .

Paper sessions will feature presentations in the areas of:

- * Animal Management: New Challenges and Applications
- * Field Conservation
- * Exhibit Innovations
- * Bird and Primate Topics
- * General Session

Posters will be displayed in Salon D at the Hotel Convention Center. Two "formal" sessions will be held during paper session breaks on Monday and Thursday; poster presenters will be available to answer your questions at these times.

Featured workshops will include:

- * ESP Workshop: Active Conservation for Keepers
- * Bowing for Rhinos
- * Animal Enrichment
- * Exhibiting Alcids
- * So Your Chapter Needs Money
- * Exhibiting Marine and Terrestrial Invertebrates
- * Australasian Rap Session (anyone interested in making a presentation or showing a video, please contact Judie Steenberg, Woodland Park Zoo, (206) 684-4011.
- * A Keeper's Role in SSP Programs: A Training Session for Matschie's Tree Kangaroos (anyone directly involved in other SSP programs is encouraged to participate; please contact Judie Steenberg, Woodland Park Zoo, (206) 684-4011, for further information).
- * Genetic Banking
- * Exhibit Design

Anyone with questions about paper, poster, or workshop sessions, please contact Cathy Socha, Program Chairperson, at Omaha's Henry Doorly Zoo, (402) 733-8401.



CONFERENCE '94

A few final reminders

DAILY REGISTRATION/SINGLE EVENTS FEES

SUNDAY:	Evening Event: Icebreaker/Beach Party (includes munchies and beverages)	COST:	\$20
MONDAY:	Daytime Event: All-day paper session including breaks	COST:	\$10
TUESDAY:	Daytime Event: Zoolympics at Heartland Park, sack lunch, tour the "Old Market"	COST:	\$10
	Evening Event: Silent Auction and Blues Night (includes munchies and beverages)	COST:	\$15
WEDNESDAY:	Daytime Event: Trip to Omaha's Henry Doorly Zoo, lunch, behind-the-scenes tours, workshops, BBQ dinner and Intertribal Dancers PowWow	COST:	\$20
	Evening Event: Country Western Night Includes munchies and beverages	COST:	\$15
THURSDAY:	Daytime Events: Morning Paper Session and Awards Luncheon	COST:	\$ 5
	Daytime Events: Final Banquet, Live Auction, Mardi Gras Dance	COST:	\$15
		COST:	\$30

- * You can still reserve your space for the Post-conference Trip to the Black Hills and Badlands of South Dakota. Please contact: Carol Cameron, Affordable Adventures (605) 342-7691.
- * Hotel reservations for the Holiday Inn Central can be made by phone by dialing (402) 393-3950.
- * United Airlines has been chosen as the official carrier for the '94 AAZK National Conference. For fares in the U.S. and Canada, call 1-800-521-4041. Use Reference #543QP.
- * An informal Video workshop will be held at the Holiday Convention Center on Monday, October 10, from 6:00 - 9:00 p.m. Please bring your videos!

SEE YOU IN OCTOBER ! !

**1994 AAZK Pre-Conference Trip
Kansas City Zoological Gardens
Saturday, October 8, 1994**

Behind-the-scenes tours of the newly completed Australian, Domesticated Animal and African Elephant exhibits.
Sneak preview of the African Plains, Forest and Island exhibits scheduled to open in 1995.

Trip includes:

transportation from the KC airport to KC Zoo
transportation from KC Zoo to Omaha for the Conference
lunch at the Zoo
dinner that night
**lodging may also be provided depending on turn-out

Registration Fee: \$20.00

Space is limited. Please register early.

For more information contact:

Jacque Blessington
Kansas City Zoo (816) 871-5700



AAZK Announces New Professional/Contributing Members

Colleen Dougherty, Franklin Park Zoo (MA)	Tracy Greeley, Elmwood Park Zoo (PA)
Tracy Muire, Paramount's Kings Dominion (VA)	Mariane Lorenzo, Dreher Park Zoo (FL)
Joyce Decker, Clearwater Marine Sci. Cntr. (FL)	Jill Ann Jassmann, Busch Gardens (FL)
Susan Goes, Monkeys & Friends (KY)	Patricia Currie, Columbus Zoo (OH)
Tim Pappas, Cleveland Metroparks Zoo (OH)	Rita Stacey, Brookfield Zoo (IL)
Dennis L. Sroka, Aurora, IL	Rachael Rennard, Henry Doorly Zoo (NE)
Scott Hauff, Heritage Zoo (NE)	Roby Elsner, Dallas Zoo (TX)
John Rehmann, Northern Animal Exchange (B.C.)	Dale Bakken, Strasbourg, Sask. (Canada)
Connie Ruesgen, Northern Animal Exchange B.C.)	

New Contributing Members

Hildegarde N. Lane, Docent, Lincoln Park Zoo, Chicago, IL
Cate Werner, Ex-Keeper, Denver Zoo, Denver, CO

Renewing Contributing Members

Richard Block, World Wildlife Fund, Washington, DC
Philip E. Foster, Jackson Zoological Park, Jackson, MS

Information Please

Currently a National Animal Disaster Preparedness and Rescue Plan is being coordinated by several organizations. Copies of guidelines and procedures for evacuation and control, and preparedness steps in the event of a natural or manmade disaster are being sought from zoological and aquarium facilities. Please send to: Diana Guerrero c/o ARK ANIMALS, P.O. Box 3716, Big Bear Lake, CA 92315-3716, (909) 866-9249.



Tactics to Thwart Animals from Fouling Water Bowls

By N.V.K. Ashraf, B. Rathinasabapathy and
Brij Kishor Gupta, Research Assistants

Coimbatore Zoological Park & Conservation Centre
'Pioneer House' Peelamedu, Coimbatore 641 004 India

Abstract

Wild animals may show certain undesirable habits as a result of captivity. Fouling water bowls, reportedly a common trait in some individual lesser felids, is one of them. Information on methods to foil this problem is sparse. This article elaborates on the series of procedures we experimented with in efforts to mitigate this problem successfully in a Leopard cat (*Felis bengalensis*) and a Jackal (*Canis aureus*).

Introduction

Overgrooming, coprophagy, wind-sucking, crib-biting, self-mutilation, tail-chewing and fouling food and/or water bowls are some of the undesirable habits that may occur as a consequence of captivity (Shepherdson, 1988; Worthington, 1993). Fouling of water bowls is a particularly bad habit common in some felids (Mansard, 1989; *Zoo's Print*, 1994). No apparent cause has been attributed to this phenomenon. At the Coimbatore Zoological Park and Conservation Centre, the solitary 0.1 Leopard cat and 0.1 Jackal always defecated in their water bowls. This forced our keepers to frequently change water. Leopard cats are particularly notorious for fouling their water bowls (Mansard, 1989; D. M. Richardson, London Zoo, pers. comm.).

There is little published information available on the methods to mitigate this problem. As far as small cats are concerned, covering their feces may be a natural habit. Since some cats have an inherent need to cover up their feces, providing peat-filled trays is important to localize feces collection and avert fouling water bowls (Law, 1993). Mansard (1989) did mention this fouling problem. He exploited this fouling tendency by providing shallow buckets with about 75mm of water (with sand and ashes added) as latrines. The Leopard cats almost exclusively used these buckets for defecation. Keeping this in mind, we conducted a series of experiments, particularly with the Leopard cat, in an attempt to prevent them from fouling their water bowls. This study was conducted from August through December 1993. This article is to document the sequence of efforts we undertook to revert them to their normal defecation habits.

Procedures Adopted

1. The Case of the Jackal

Our efforts were easily rewarded in the case of the Jackal. The mere shifting of this animal to a new enclosure changed the habit of fouling the bowl. The old enclosure was a cement-floored cage measuring approximately 6ft. x 8 ft. Prior to this move, the animal invariably fouled either the food and/or water bowl. In the new enclosure, which is about 15 times more spacious and includes natural boulders and a den with mud flooring, it always defecated on the floor with no particular preference as to location. During the past five months of our observations, only twice did the Jackal foul the bowl. It happened once because the empty feed trough was kept inside the enclosure for some time. We have already shifted the water bowl to an elevated stand in order to prevent the occurrence of such isolated incidents.

Tactics to Thwart Animals from Fouling Water Bowls, Continued

2. The Case of the Leopard Cat

Procedure 1: Providing a second water source -Our earlier attempts were to provide the cat access to clean drinking water. The water bowl was a concrete trough kept on a four-inch high stand and the cat had the habit of getting on top of this bowl to defecate inside it. This made the water unsanitary for drinking. We temporarily solved this problem by providing a second water trough. The cat almost entirely fouled the old one and rarely defecated in the new water dish. This is how Mansard (1989) also exploited the fouling tendency by providing shallow buckets with water as latrines. This procedure solved the problem of providing clean water to the cat. The offensive sight of the second fouled bowl was still a problem.

Procedure 2: Providing a peat-filled trough - As previously mentioned, providing peat-filled trays may localize feces collection (Law, 1993). We decided to replace the water in one of the bowls with sand. We chose the usually-fouled concrete water bowl for this replacement. However, the cat chose to defecate in the new water bowl. Consequently the practice of providing two water troughs continued for some time.

Procedure 3: Withholding water - The cat invariably defecated every day, approximately six to seven defecations per week. We were interested to know the cat's reaction when no water was provided. In the beginning of September, we removed both the water bowls and provided a peat-filled trough instead. We were of the opinion that the cat might continue to use the sand pit if we succeeded at least once in forcing it to use this sand trough. However, the cat seemed to prefer withhold defecation rather than defecate in the sand trough. Finally, on the third day, the cat defecated at the corner of the cage. Since water is an essential element, we could not afford to continue this experiment of withholding water. We noted the site of 20 successive defecations during this month and 35% of these were in the water bowl. The sand trough was used only once.

Procedure 4: Hanging water bowl - Eventually we came up with the idea of providing water in a small (six-inch diameter) plastic bowl that was attached to the sides of the mesh on a basketball-like ring, at a height of about eight inches above the floor. This arrangement ultimately curtailed the habit of the cat fouling its water source. The cat always used a particular corner of the cage for defecation. We took advantage of this preference and provided a sand tray (1' x 2') in that particular corner to localize defecation. We observed the cat for a month (October 1993). The sand trough was used only once.

Changes observed when cat was shifted to a new enclosure:

Meanwhile, on 26 September 1993 we shifted the Leopard cat to a new, more naturalistic enclosure which had all the recommended enrichment artifices including a small water pool on the floor of the unit. Though we decided to continue with the practice of providing a hanging water bowl and sand tray in this new enclosure, we were concerned that when released, the cat might foul this new pool. The cat did not disappoint us. We observed the cat fouling the pool for three consecutive days. This forced us to keep the water pool empty for some time.

For more than a month the cat defecated at the corner of the enclosure and not in the special sand tray provided for this purpose. The water pool continued to be empty. Meanwhile, the keeper suggested replacing the sand tray with the sand-filled old concrete bowl that had previously been fouled by the cat whenever it contained water. We were also aware of the fact that "seeding" certain areas with feces can persuade some cats to use those locations for defecation (Barclay & Lewis, 1988). Therefore, we not only kept it exactly at the corner where the cat preferred to defecate, but also buried some of the old feces in the sand to encourage usage. This encouraged the cat to use this sand trough as a latrine site.

For more than two months the water pool was kept empty for fear of the cat fouling it. On 12 December 1993, it rained and the pool was filled with water. To our pleasant surprise, the cat continued to prefer either the sand trough or some site in the enclosure (often a particular location) for defecation. For all those days we had been reluctant to fill the pool with water, but the rain proved our fears groundless.

Tactics to Thwart Animals from Fouling Water Bowls, Continued

In December all the defecations were in the sand trough. During the last two months (Jan. & Feb. 1994), 45% (N=55) of the defecations were in the sand trough. The rest were localized in a particular spot, often below a bush/shrub. We never observed the cat making any attempt to bury its feces. We encouraged the cat to use the sand trough by frequently shifting the trough to those sites chosen by the cat for defecation. The cat would use it immediately and for a couple of weeks before changing its preferred defecation site again. We have so far changed the location of the sand trough four times.

Conclusion

The major lesson learned from this exercise is that careful thinking, planning and gradual changes can succeed in getting rid of some of the unpleasant habits of captive animals. In both cases, the water trough had to be raised above ground level to prevent fouling. This could perhaps be the standard procedure for preventing many species of mammals from fouling their water/food bowls.

References

- Anonymous, 1994. Report of the Captive Working Group: Global Captive Population Action Plan. *Zoo's Print*, 9(1,2):21-22.
- Barclay, E. and Lewis C. 1988. Strategies for exhibit plantings for large felids. *Animal Keepers' Forum*, 15(12): 443-445.
- Law, G. 1993. Behavioral enrichment for cats. In *Management guidelines for exotic cats*. Published by the Association of British Wild Animal Keepers. Reproduced by ZOO ZEN, 8(8):31-33.
- Mansard, P. 1989. Some environmental considerations for small cats. *International Zoo News*, 36(3)- No. 214: 19-22.
- Shepherdson, D. 1988. Environmental enrichment in the zoo. In *Why Zoos?* Universities Federation for Animal Welfare, 8-Hamilton Close, Potters Bar, Herts, EN6 3QD, United Kingdom.
- Worthington, M.K. 1993. Handling and Teaching Zoo Animals. *International Zoo News*, Vol: 40/2, No . 243:14-22.

Acknowledgment

Research has been an utmost priority at Coimbatore Zoological Park. Thanks to the interest shown by the members of the Coimbatore Zoological Park Society, particularly Mr. G. Rangaswamy, the Secretary. We are thankful to them for their continuous support in all our endeavors.



Free Fruit Keeps Bugs Out of Your House

Are water bugs or roaches a problem in your house? If so, there is a simple, no-cost solution growing on wild roadside trees. The light green, crinkly fruit of the Osage orange tree (also known as hedge apples) can keep these pests out of your house. Tuck about six of the fruits behind appliances, in the basement, garage or closets and keep your house free from those invaders. The "oranges" may also repel crickets, spiders, box elder bugs, mice, and ticks. After they rot or shrivel, they do not smell and are easy to remove. When they do, just throw a few new ones in their place. (*Country Journal*)



--from *Nature News, The Nature Book Society*

Food Supplementation of North American Porcupines (*Erethizon dorsatum*)

*By
Cathi Mathias, Keeper
National Zoo, Washington, DC*

Introduction

Porcupines are precocial and don't receive much parental care. If health problems arise, they need to be supplemented. Young are either cared for exclusively by humans, or supplemented and returned to their mothers/families so they acquire social skills.

Hank, a North American porcupine (*Erethizon dorsatum*), was born at the Department of Zoological Research (DZR) of the National Zoo on 9 April, 1990. Supplementation started at 24 days of age when his mother sustained an injury and his weight dropped. Because lactation will cease if a porcupine does not nurse for three consecutive nights (Roze, 1989), we chose to return Hank to his mother after feedings.

North American porcupines can eat solid food from birth and depend on mother's milk for only a week (Shadle, 1950), but will suckle as a supplement to plant material for as long as milk is available. Wild porcupines suckle their young for about 127 days, but in captivity nursing terms are shorter, perhaps due to a more nutrient rich diet (Roze, 1989).

Materials and Methods

Because of past successes with Esbilac® when hand-rearing a Prehensile tail porcupine (*Coendou prehensilis*), we gave Hank an 18% Esbilac® formula mixed with water, Lactaid® (guards against lactose intolerance), Lactinex® (provides proper gut flora) and a mixed baby cereal formula three times daily. For a 24-hour period, calculate ten percent of the animal's body weight and offer that amount apportioned between feedings. We prepared formula a day ahead to allow time for lactase to break down the lactose. Formula was heated in a hot water bath and fed from a syringe fitted with a flexible tube. Wrapping the animal with a thick towel papoose-style, gave good control over his flailing legs. We held the animal in a upright position to aid in his swallowing. Gloves were not necessary if handling was gentle. We kept notes on his behavior, weight, milk acceptance, defecation and urination.

The first feeding of the day was usually the most successful, and the last one the least, due to Hank's sleepiness. Weight increases overnight implied he was eating on his own. He started eating solid foods at about 15 days, but Erie Zoo's porcupette ate solids on its birth day. After feeding the formula, we offered apple, banana, carrot, sweet potato, marmoset diet, sweet corn and white bread, cut into sticks. Supplementation stopped after 78 days because he refused to take the milk and was eating well on his own.

Diarrhea plagues Hank, probably caused by giardiasis. This organism was also found in the adults but they were asymptomatic. Flagyl® was given and usually diarrhea would clear up in about five days.

Results

Weight data for all three groups (hand-raised; supplemented but left with mother; and mother reared) is on Graph 2. Because some animals had more data points than others, only one weight from each of the 80 weeks appears for comparison. A regression calculation uses the first 30 weeks of age data. Supplemented animals (215.5g/week of age) gain weight faster than the hand-raised animals (158.6g/week), while mother-raised animals gained 195.60g per week of age.

Food Supplementation of N.A. Porcupines, *Continued*

Discussion

Supplemented animals are able to stay with their mothers and therefore maintain valuable social skills and gain weight faster than the hand-raised animals. Because porcupines are so precocial and receive little parental care, they are excellent candidates for supplemental care. Smelling humans on their young does not cause rejection, and they will continue to nurse if able. We used Esbilac® on young Prehensile tailed porcupines at DZR and it worked well. This regimen would probably be appropriate for any large precocial rodent.

Results may be skewed because the animals hand-raised or supplemented usually had a medical problem that required humans to intervene. Medical problems could have affected their growth or birth weights. Perhaps artificial diets are richer or more abundant than mother's milk. The sample size is relatively low (supplemented 2, mother-reared 6, hand-raised 5) and many animals had few data points.

After this hand-raising project, I asked other zoos to send data on their hand-raising experiments. I received replies about nine animals from Erie Zoo, Granby Zoo, Alice Adams from Lake Superior Zoo, Minnesota Zoo and Virginia Zoological Park.

Granby Zoo hand-raised one male. Initially they offered 4ml of Lactate® and Esbilac® at two meals and it took a total of 5ml. On Day 3 they offered only Esbilac® and it was taking 15ml. They mentioned no treatment for a bout of diarrhea. After that setback, it apparently did well as detailed records stopped after Day 12.

Norfolk sent detailed information on one supplemented female, Needles, who was born a twin. Because of Needle's continuing weight loss, they started her on Similac® (given 2cc; 1cc water and 1cc Similac® mixed 50/50). They fed three times a day ad lib. They added 1/2cc Stat-vme® to the formula. Later they switched to an Esbilac® and Revive® mixture still adding the Stat-vme. They had problems with diarrhea too, though no specific treatment was given. The animal was seen nursing during this period. They switched to Ensure® mixed with Omnivore at 70 days of age. As soon as the diarrhea cleared, she gained weight steadily. Needles ate solid foods (since at least Day 18) and they stopped trying to feed it on Day 106 though she started refusing at Day 95.



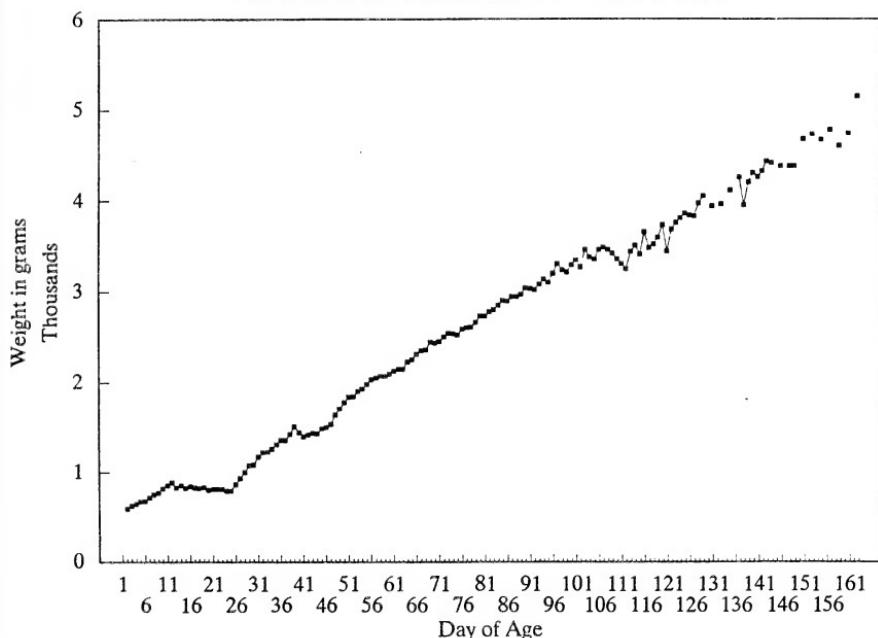
Alice Adams, a docent for Lake Superior Zoo, sent anecdotal information, but no weights she considered accurate. She listed food given (lettuce, apple, banana, oatmeal, Similac®, hard bread, peanuts), but no concentrations or amounts of food. She gave 6ml of Similac® five times a day. On Day 18, she offered 25-30ml of formula mixed with Gerber™ baby cereal. On Day 24 she used a shallow bowl instead of a bottle. On Day 32, the animal ate branches and grass. Kayopectate® and Amforol® were the treatment for diarrhea.

Minnesota Zoo sent information on four mother-raised and two hand-raised animals (one of which died at 42 days). They fed four tablespoons Esbilac® (one part to three parts water) three times a day initially. Feedings decreased to two meals a day on Day 68 and the amount decreased to two tablespoons on Day 103. Hand feeding stopped at Day 161.

Food Supplementation of N.A. Porcupines. *Continued*

Graph 1

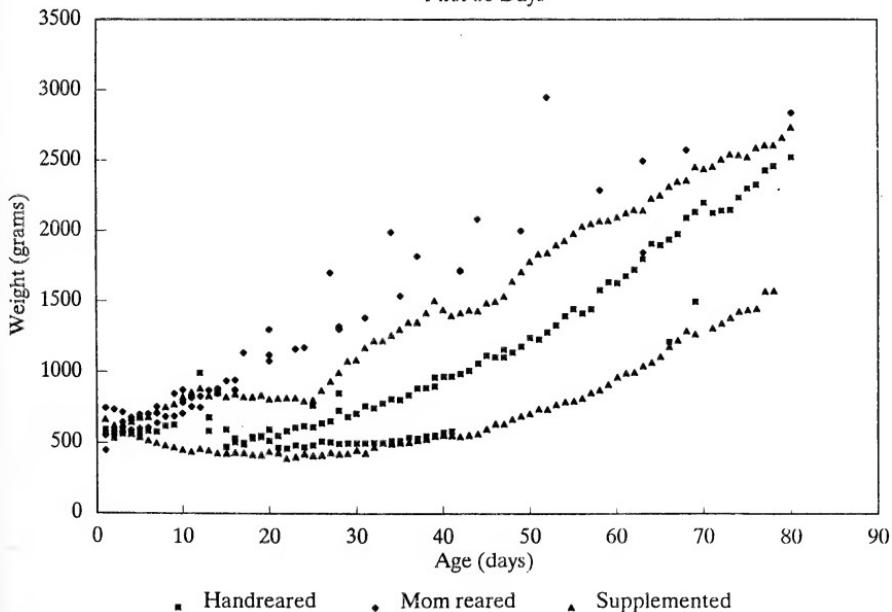
HANK'S WEIGHT VS. AGE



Graph 2

North American Porcupine Development

First 80 Days



Food Supplementation of N.A. Porcupines, Continued

Erie Zoo sent information on a male named Ollie. They had to pull him for hand-rearing when his mother ignored him. He ate canned primate diet and apple on his birth day and was given 3cc of Havolac® milk every four hours (from 0730 to 1330). By Day 6, they increased the milk to 22.5ml and feedings were only from 0630 to 2100 hours. Milk was discontinued after Day 11.

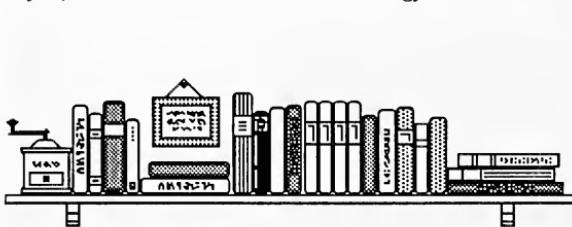
Tryon (1947) reports on an animal that was taken by cesarean after its mother was killed. It was hand fed milk for only the first eight days, then it was given moist bread and eventually rabbit pellets.

Acknowledgments

I wish to thank Alice Adams, Jackie Fallon, Mireille Forand, Vicki Hulett, and the Erie Zoo for sending information about their animals; Miles Roberts for reviewing the manuscript and helping with the corrections and Frank Kohn for help with the graphs.

Literature Cited

- Roze, U. 1989. the North American Porcupine. p. 161. Smithsonian Institution Press, Washington, DC.
Shadle, A.R. 1950. Feeding, care and handling of captive porcupines (*Erethizon*).
Journal of Mammalogy 31(4):415.
Tryon, C. A. 1947. *Journal of Mammalogy* 11(3):282.



Language & Species

By Derek Bickerton
The University of Chicago Press
5801 S. Ellis Ave., Chicago, IL 60637
Paperback 297 pgs. \$13.95

Review by Robert W. Berghaier
Animal Keeper
Zoological Society of Philadelphia
Philadelphia, PA

Derek Bickerton is a professor of linguistics at the University of Hawaii. He has attempted in this book to examine language and what it has done for our species and how our use of language has made us different from other forms of life.

In the Introduction is this paragraph which sets the tone and direction of this work:

"We share with the chimpanzee perhaps as much as 99% of our genetic material, and our common ancestor may be as little as 5 million years behind us. Yet if the apes look around them, what can they see that their species has made? At the most, the beds of broken boughs that they built last night, already abandoned, soon indistinguishable from the surrounding forest. The contrast is no less striking if we look at how much of the world each species controls. The chimpanzee has a few patches of jungle, while we have the whole globe, from pole to equator, and we are already dreaming of new worlds. Most species are locked into their own niches, ringed by unbreachable barriers of climate, vegetation, terrain. We alone seem magically exempt from such bounds."

Book Review: Language & Species, Continued

What gave our species such abilities? Is it due to the fact that we walk upright, have large brains, or use tools? Dr. Bickerton feels that our use of language is the key element to explain our domination of our world. He has attempted to undertake a multidisciplinary approach to examine his theory. The author combines aspects of his own field-linguistics with anthropology, ethology, paleontology and examinations of "ape language", early child verbal development, and pidgin languages. What follows is a fascinating, but at times frustrating work.

Language & Species is organized into nine chapters. The first three explore the nature of language. Chapter 1 compares human language with animal communication systems. Chapters 2 and 3 look at the function of language and all the subtle nuances such as the syntax of words that give meaning to all our verbiage.

The next four chapters examine the evolutionary history of language. Chapter 4 traces the neurological systems that allow a species to acquire any kind of language. Chapter 5 proved most interesting to me. One section compared the recorded conservations of children under age two to the "utterances" of the famous chimp Washoe.

Child

Big train; Red book
Adam checker; Mommy lunch
Walk street; Go store
Adam put; Eve read
Put book; Hit ball

Washoe

Drink red; Comb black
Clothes Mrs. G.; You hat
Go in; look out
Roger tickle; You drink
Tickle Washoe; Open blanket

Did you detect much difference between the two? Neither did I. While speaking to the public about the "higher apes" I have always equated their intelligence to that of a two-year-old child. Dr. Bickerton's observations seem to confirm that personal impression. He concludes that there are no substantive differences between the language of apes and under-two children.

Another fascinating paragraph follows a recorded "pidgin" conversation between two sea captains. A Norwegian and a Russian attempted to trade flour for fish using a type of primitive trading language that allows two otherwise very intelligent adults to communicate, even though they do not speak each other's tongue.

Russian (R): What say? Me no understand.
Norwegian (N): Expensive, Russian-goodbye.
R: Nothing. Four half.
N: Give four, Nothing good.
R: No brother. How me sell cheap? Big expensive flour on Russia this year.
N: You no say true.
R: Yes. Big true no lie, expensive flour.
N: If you buy-please 4 pud (a measure of 36 lbs). If you no buy-then goodbye.
R: No, nothing brother, please throw on deck.

I am sure that you would agree with the author that such an exchange seems hardly more complex than the utterances of a 21-month-old child, or Washoe for that matter.

Chapters 6 and 7 attempt to show how a human "protolanguage", similar to those examples which I have noted in the last two paragraphs, evolved and turned into the structured languages that we use today. The last two chapters examine some of the consequences that have resulted from our species mastering this tool we call language. This part of Language & Species was the most intriguing to me. These three quotes from the author may give you some idea why I found this part of the book fascinating.

"Some of us may still regard our species as having freed itself from the constraints that operate on other species. If language is an evolutionary adaptation then those powers have specific limits. Every adaptation is a potentially maladaptation."

Book Review: Language & Species, Continued

"In the wake of agriculture (a human endeavor that Bickerton feels was an inevitable product of our ability to use language), and as a direct consequence of it, has come three new things that have shaped the world our species now inhabits: technology, inequality and violence."

"Perhaps language is, after all, terminally dysfunctional."

The last chapter is followed by a thought-provoking epilogue. There is also an extensive section of notes and references which the author has used as a basis for his theory.

I mentioned that I found the book both fascinating and frustrating. The frustration comes from the often abstruse passages in which the author tries to explain in detail how language works. At some points in the book I felt that Bickerton was stating the same points and issues over and over again, almost *ad nauseam*. If you have ever had to suffer through a philosophy text that examines the subtle differences in philosophical theories you probably know what I mean. For example, I will present the following passage:

"Other creatures cannot even want to negotiate reality without an SRS - a second language driven representational system - they have nothing within which acts of negotiation can be conceived. But within the SRS, we can conceive of things being other than as they are."

Take my word for it, the passage is as murky in the context of the work as it must appear out of context in this review

I did not find this book to be of direct work-related application for most zoo keepers. It could perhaps be of value to those primate keepers who want to understand the theories and nuances of language and how it applies to studies on language use in the higher primates. For those of our profession who wish to expand their horizons and learn about an important facet of our species, I highly recommend it. I will leave you with one last quote that I hope will stimulate your interest in this book:

"Language has given us, not enough, but too much; not just the stewardship of the earth, but the capacity to destroy species weaker than ourselves, and even features of the environment on which our own survival might depend."



The Shape of Enrichment - the August issue of this publication dedicated to sharing animal enrichment information contains, among others, articles on Walrus Enrichment through Husbandry Training and Seabid Enrichment at the Oregon Coast Aquarium. If you are interested in subscribing to this useful publication, the cost is \$12.00 per calendar year (U.S. Funds only) and includes both domestic and foreign air mail postage. Mid-year subscriptions are prorated. Back issues are available for \$3.00 each. Send all subscription requests, article submissions, letters, comments and/or questions to: *The Shape of Enrichment*, 1650 Minden Dr., San Diego, CA 92111-7124.

Chapter News

(Making a Realistic Contribution) - a project which collects books and journals for less privileged overseas.

--submitted by Philadelphia Chapter

Philadelphia Chapter AAZK

We had another successful Bowling for Rhinos in June. We were able to raise just over \$6000.00 for this great cause. Although donations were not as high this year, the event was a big hit and we look forward to BFR '95.

Most of our spring activities have focused on our zoo. We were lucky to have in-house lectures by staff and keepers. One of our veterinarians, Dr. Donna Ialeggio, spoke in detail about the elephant necropsy she and a dedicated team of volunteers were forced to perform over the holidays when our Asian female, Peggy, went down after a lengthy period of poor health. Fellow keeper, Bob Berghaier, also reported back to us on the proceedings of the Eastern Cougar Conference.

Our keeper evenings, a series of keeper talks for zoo members, and our keeper mornings, keeper work-related opportunities for members, continue to generate increased interest in the work we do and also keeps a steady source of money coming into the Chapter.

Monies continue to be collected from zoo fountains and from change collection boxes in our food courts. These funds support our Critter Fund which purchases behavioral enrichment items for our animals. Our budget is currently up to almost \$5000.00 so we are busy brainstorming for new ways to make our animals's lives livelier.

We donated \$500.00 to our Reptile Department to purchase materials and hire an artist to create new murals for several exhibits.

Outside the zoo, we continue to support the Adopt-an-Acre program through our Conservation Parking Meter. We also continue to raise money for The Nature Conservancy's Campaign for the Delaware, which protects vital watersheds along the Delaware River. This money is generated through our zoo viewfinders. We were able to contribute an additional \$100.00 to this successful land acquisition program. We hope to participate in the National Zoo Chapter's Project M.A.R.C.

Central Florida AAZK Chapter

The Central Florida AAZK Chapter began 1994 with a fundraiser to support the Palic Zoo in Yugoslavia. A crab dinner followed by a raffle was held at Disney's Discovery Island. Although the temperature was below 50° F and the function was held outside, we had a great turnout. With the proceeds from the evening and support from the San Diego AAZK Chapter, we were able to send \$1500.00 to the Palic Zoo.

The March meeting was a tour of the Central Florida Zoo. In addition to the tour, we engaged in some friendly competition that tested our zoo knowledge.

In April we had a great guest speaker at our meeting. Matt Edmonds, formerly of Lowry Park Zoo, recapped his article on rhino training which was published in the October, 1993 *AZF*. He also showed a video of a training session. Subsequently Matt has joined the training staff at Discovery Island as well as our local AAZK Chapter. We're all happy to have him.

Nelia Stephens, our Chapter Secretary, organized our biannual at the beach camping trip in Brevard county. Highlights included a visit from a wise woman who told ancient Indian tales about animals and a trip to the brand new Brevard Zoo. The exhibits at the zoo were spacious and filled with enrichments. We all admired their excellent graphics. There was also a hands-on area for kids which looked like a lot of fun - not that we played in it!

June brought us out for the annual Bowling for Rhinos evening which was as always a lot of fun and a big success.

The next big event was held in July at Disney's Discovery Island. Every summer Discovery Island hosts an Island tour and cookout for the Chapter. This meeting is usually our most well-attended meeting.

Chapter News, Continued

Jamie Sincage, our Chapter Vice President, put together a new and improved format for our newsletter. We are raffling off a velociraptor sculpture as our fundraiser for National AAZK.

In addition to sending aid to the Palic Zoo, the Chapter has been involved in sending miscellaneous items to the Pentencito Zoo in Guatemala. Understanding the pride zookeepers take in their profession, we sent uniform shirts to their staff in addition to operational supplies.

If your Chapter is interested in making a donation or obtaining more information about the Palic Zoo or Pentencito Zoos, please contact the Central Florida Chapter.

--Heidi Fowle, *Discovery Island*

Tucson Chapter AAZK

This particular mid-summer meeting was not so much held to discuss business, but to discuss what kind and how many toppings we would like on our pizzas. We all gathered at Zachary's Pizza which is world-renowned for its double whammy extra cheese, gigantic, dripping, gooey, delicious pizza pie wonder. We ordered two and waited the hour or so that they said it would take to prepare such a delight.

In the interim, our base officers, Michelle Acuna (Pres.), Taylor Edwards (V.P.), Dee Nelson (Treas.) and yours truly Bruce Eneboe (Sec. & Liaison) were delighted to see a new prospective member, Tracey Boerner show up. Tracey is our newest employee at Reid Park Zoo. She moved from South Carolina (Riverbanks Zoo) and is currently being trained in all areas of the zoo. No doubt she heard rumors of the excellent pizza at Zach's. But seriously, we're all pulling for Tracey and hope that she will be a constant member when roll call comes around at the zoo and at future Chapter meetings as well.

Bowling for Rhinos was our first order of business. We managed to top last year's total and have gotten more people interested in and educated about the plight of the rhino. Ideas were exchanged about how to make next year's event run

smoother, and the bottom line was more people, more lanes, more money.

We also talked about our next fundraiser which will be our annual Swap Meet venture. Items will be rolling in from individuals at the zoo & museum, docents at ASDM as well as families and friends of both. We will sell anything including lint. Our next Chapter meeting is mid-September with the Swap Meet forthcoming in late October to mid-November.

--Bruce Eneboe, *Chapter Liaison*

South Florida AAZK Chapter

The South Florida Chapter held our Bowling for Rhinos event this past July at Don Carter Lanes. To date, we've raised about \$600.00, with additional income still coming in from the sale of T-shirts which were designed by keeper Antonio Flores.

The BFR turnout was surprising. We had over 150 participants show up. Door prizes were given out every 15 minutes throughout the event. Afterwards, trophies were awarded to teams and individual bowlers for the highest score and lowest score. Overall, everyone had a great time; with many participants saying they want to come back again next year.

We are also working on our Wildlife Art and Awareness weekend which will be held in October.

--submitted by *South Florida AAZK Chapter*

Sedgwick County Zoo AAZK Chapter Wichita, KS

We have beat the Kansas heat to have a busy and successful summer. Our Rockin' for Rhinos Celebration on Conservation Day in June included a presentation by Andy Lodge and allowed us to donate \$1400.00 to the Ngare Sergoi and Ujung Kulon preserves. A rummage sale in August netted over \$100.00 to help us send keepers to the Omaha Conference. We also began selling our new Chapter Logo T-shirts to our animal staff. Finally, we have proudly completed our successful first year of raising conservation funds with our Conservation Parking Meter on display in the Sedgwick County Zoo Jungle Building.

--Joyce Kaplan, *Chapter Liaison*

Chapter News, Continued

San Francisco Bay Area Chapter

The Phoenix has risen again! New officers for 1994 are:

President.....Lisa Bryant
Vice President.....Ruby Lara
Treasurer.....Valerie Long-Reigel
Board Reps.....Jean Lai/Leslie Field
Newsletter.....Bill Tabb

Our meeting was held at the California Academy of Sciences in Golden Gate Park. Our guest speaker for the evening was Dr. Luis Baptista, Curator of the Ornithology/Mammalogy Department. Dr. Baptista led us on a tour filled with humor and fascination as we examined the many kinds of preserved birds and bones in his collection. Our meeting ended with a round of applause and a Happy Birthday to Dr. Luis Baptista. All of us are looking forward to a productive and eventful year.

--Irene Donovan

Topeka Chapter AAZK

Environmental enrichment, a necessity for all captive animals, is the new theme for our Twirl-A-Coin. We hope to show the public how their contributions help support enrichment for the animals.

Dr. Sandy Wilson, staff veterinarian at the Topeka Zoo, was our featured speaker for February. She gave a very informative and entertaining presentation on her trips to Guatemala. In addition to the slides, she passed around some items that she had brought back with her and played an audio tape of the sounds of the people and the animals she encountered.

Our education committee met to discuss programs for the year and sent out surveys to all the area schools to find out what topics instructors would like us to cover. We look forward to the upcoming school year.

In April our Chapter hosted a Bowling for Rhinos bowl-a-thon, but this year we had help. Our thanks go out to the Topeka Jaycees for their tremendous support and hard work in helping us to raise over \$1600.00 for the rhinos. Our thanks to those members from the Flint Hills AAZK Chapter (Manhattan, KS) who could join us in the fun.

In May we hosted a potluck/cookout for the AAZK Board Members during their mid-year meeting in Topeka. I would like to thank those members of the Kansas City and Flint Hills Chapters who were able to attend. Over Memorial Day weekend we held a bake sale to coincide with Jim Fowler's (Mutual of Omaha's Wild Kingdom) visit to our zoo.



Note: In order to help meet our conservation goals, we are selling T-shirts with our Chapter Logo (a Binturong) on the front - see above. The price is only \$12.00 which includes shipping. These are very good quality shirts, grey with black design, and are available in M, Lg and X-Lg. Send orders to Topeka Chapter AAZK, 635 S.W. Gage Blvd., Topeka, KS 66606-2066. Make checks payable to Topeka AAZK. These are available until current inventory is depleted.

--Darrin Webb, Chapter Liaison



**THE
GOURMET
RODENT™**


VISA MasterCard

RATS AND MICE

Bill & Marcia Brant
6115 SW 137th Avenue
Archer, FL 32618
(904) 495-9024
FAX (904) 495-9781
© All Rights Reserved

L.I.N.K.
(Liaison and Information Network for Keepers)

Coordinator for the LINK System: Mark de Denus, Assiniboine Park Zoo, 2355 Corydon Ave., Winnipeg, Manitoba, Canada R3P OR5. (204) 986-6921 [w]; (204) 837-2916 [h]

Regional Coordinators

ALABAMA - Fred Alvey, Zoo Atlanta, 800 Cherokee Ave. S.E., Atlanta, GA 30315

ALASKA - Vacancy

ARIZONA - Vacancy

ARKANSAS - Debbie Jackson or Ann Rademacher, Little Rock Zoological Gardens,
#1 Jonesboro Dr., Little Rock, AR 72205

CALIFORNIA (Northern) - Jean Lai, Oakland Zoo, 9777 Golf Links Rd., Oakland, CA 94605 and
Ruby Lara, Sacramento Zoo, 3930 West Land Park Dr., Sacramento, CA 95822-1123

CALIFORNIA (Southern) - Mr. Kay Munsey, EFBC, HCR 1, Box 84, Rosamond, CA 93560

COLORADO - Vacancy

CONNECTICUT - Jeanette Nadeau, Roger Williams Park Zoo, Providence, RI 02905

DELAWARE - Theresa Maas, Philadelphia Zoo, 34th & Girard Ave., Philadelphia, PA 19104

FLORIDA - Rick Smith, 5752 Stoneridge, Orlando, FL 32839

GEORGIA - Fred Alvey, Zoo Atlanta, 800 Cherokee Ave. S.E., Atlanta, GA 30315

HAWAII - Vacancy

IDAHO - Holly Liappas, Tautphaus Park Zoo, P.O. Box 50220, Idaho Falls, ID 83405

ILLINOIS - Pat Swieca, 5710 W. Cullom Ave., Chicago, IL 60634

INDIANA - Vacancy

IOWA - Carla Wieser, Omaha's Henry Doorly Zoo, 10th St. & Deer Park Blvd., Omaha, NE 68107

KANSAS - Vacancy

KENTUCKY - Scott Wright, Cleveland Metroparks Zoo, 3900 Brookside Park Dr., Cleveland, OH 44109

LOUISIANA - Rhonda Votino, 3535 Houma Blvd., Apt. 109, Metairie, LA 70006

MAINE - Jeanette Nadeau (see addresses under CT)

MARYLAND - Theresa Maas, Philadelphia Zoo, 34th & Girard Ave., Philadelphia, PA

MASSACHUSETTS - Jeanette Nadeau (see addresses under CT)

MICHIGAN - Tim Sampson, John Ball Zoo, 1300 W. Fulton, Grand Rapids, MI 49504

MINNESOTA - Tim Hill, Minnesota Zoological Gardens, 13000 Zoo Blvd., Apple Valley, MN 55124

MISSISSIPPI - Jeannie Frazier, Jackson Zoological Park, 2918 W. Capitol, Jackson, MS 39209

MISSOURI - Vacancy

MONTANA - Holly Liappas (see address under Idaho)

NEBRASKA - Carla Wieser (see address under Iowa)

NEVADA - Patricia Simonet, Wildlife Safaris, P.O. Box 6735, Incline Village, NV 89450

NEW HAMPSHIRE - Jeanette Nadeau (see addresses under CT)

NEW JERSEY - Frank Leonard, Bronx Zoo, 185th & Southern Blvd., Bronx, NY 10460

NEW MEXICO - Vacancy

EAST NEW YORK - Frank Leonard, Bronx Zoo, 185th & Southern Blvd., Bronx, NY 10460

WEST NEW YORK - Alan Baker, Burnet Park Zoo, 500 Burnet Park Dr., Syracuse, NY 13204

NORTH CAROLINA - Lucy Segerson, North Carolina Zoo, Rt. 4, Box 83, Asheboro, NC 27203

NORTH DAKOTA - Bob Debets, Assiniboine Park Zoo, 2355 Corydon Ave., Winnipeg, Manitoba
Canada R3P 0R5 (204) 986-6921 [w]

OHIO - Scott Wright, Cleveland Metroparks Zoo, 3900 Brookside Park Dr., Cleveland, OH 44109

OKLAHOMA - Debbie Jackson or Ann Rademacher (see addresses under AR)

OREGON - Anna Michel, Washington Park Zoo, 4001 SW Canyon Rd., Portland, OR 97221

PENNSYLVANIA - Theresa Maas, Philadelphia Zoo, 3400 W. Girard, Philadelphia, PA 19104

RHODE ISLAND - Jeanette Nadeau (see addresses under CT)

SOUTH CAROLINA - Lucy Segerson, North Carolina Zoo, Rt. 4, Box 83, Asheboro, NC 27203

SOUTH DAKOTA - Bob Debets (see address under ND)

TENNESSEE - Gail Karr or Cindy Pinger, Memphis Zoo & Aquarium, 2000 Galloway, Memphis, TN 38112

TEXAS - Connie Dieringer, Caldwell Zoo, P.O. Box 4280, Tyler, TX 75712

UTAH - Vacancy

VERMONT - Jeanette Nadeau (see addresses under CT)

VIRGINIA - Theresa Maas, Philadelphia Zoo, 34th & Girard , Philadelphia, PA 19104

WASHINGTON - Vacancy

WEST VIRGINIA - Theresa Maas, Philadelphia Zoo, 34th & Girard , Philadelphia, PA 19104

WISCONSIN -Wayne Hazlett, 3768 S. 89th St., Milwaukee, WI 53228

WYOMING - Holly Liappas (see address under Idaho)

DISTRICT OF COLUMBIA - Theresa Maas (see address under PA)

Province of Ontario - Vacancy

Provinces of Manitoba & Saskatchewan - Bob Debets (see address under ND)

Province of Quebec - Vacancy

Provinces of Alberta & British Columbia - Grant Tkachuk, 10139 157th St., #206, Edmonton, Alberta

Atlantic Canada - Bernard Gallant, RR # 7, 1081 Ryan Road, Moncton, N.B., E1C 8Z4 T5P 2T9

Institutions wishing to advertise employment opportunities are asked to send pertinent data by the 15th of each month to: Opportunity Knocks/AKE, 635 Gage Blvd., Topeka, KS 66606. Please include closing dates for positions available. There is no charge for this service and phone-in listings of positions which become available close to deadline are accepted. Our phone is 1-800-242-4519 (U.S.); 1-800-468-1966 (Canada). Our FAX is 913-273-1980.

VETERINARY TECHNICIAN...requires 1+ years experience as a Veterinary Technician and/or related degree. Must also be eligible for or hold license to practice veterinary technology in New York State. Responsibilities include maintaining the Animal Health Clinic, assisting veterinarians in medical procedures and medications, and providing for the care and feeding of captive animals. Position is located at the Queens Wildlife Center in Flushing Meadows Park, New York City. Salary mid-\$20's. Benefits include health, dental, vacation and retirement plans. Send resume to: John Fairbairn, Human Resources, Wildlife Conservation Society, 2300 Southern Blvd., Bronx, NY 10460. Call (718) 220-5119 with inquiries.

ELEPHANT KEEPER...requires at least three (3) years experience handling elephants. Responsibilities would include the care and maintenance of two (2) female Asian elephants, rides and shows, as well as care of other species. Housing available. Send resumé to: Debbie Barreda, Natural Bridge Zoo, P.O. Box 88, Natural Bridge, VA 24678.

ZOOKEEPER/MAMMALS-PRIMATES...responsibilities include daily care and management of a diverse collection of primates. Duties will include exhibit maintenance, assisting in veterinary procedures, capture and restraint, record keeping, behavioral observations and interacting with the public. Previous primate experience preferred. Associate degree in biology or related field or equivalent experience preferred. Must possess good written/oral communication skills, current TB test and current tetanus shot. Valid driver's license required. Willingness to work outdoors, ability to lift heavy objects and to work weekends required. Ability to work overtime and be available on special needs/circumstances on a 24-hour basis (i.e. hand-rearing) required. Salary commensurate with experience. Send resumé to: Carolyn Kennedy-Munn, Assistant Curator of Mammals/Primates, Audubon Institute, P.O. Box 4327, New Orleans, LA 70178. EOE.

The following two (2) positions are available at the North Carolina Zoological Park. For either position, send resumé to: Ken Reininger, North Carolina Zoological Park, 4401 Zoo Parkway, Asheboro, NC 27203 by 30 September 1994.

BIRD KEEPER...responsible for avian care at new alcid exhibit and at 13,000 sq. ft. tropical aviary; three (3) years aviculture experience with softbills and/or seabirds preferred; undergraduate degree in natural sciences with ornithology coursework preferred; scuba certification desirable.

ANIMAL CARE SUPERVISOR...responsible for supervision of newly opened Cypress Swamp and Children's Zoo exhibits; works closely with education staff for programming; undergraduate degree in animal science or related field preferred; minimum four (4) years experience with waterfowl, large cats, reptiles and/or domestic animals desirable.

ZOOKEEPER/MAMMALS...requires a minimum of two (2) years paid, hands-on experience with felines, ungulates and primates and degree or equivalent zoo-related experience. Duties include daily care, feeding and habitat upkeep, breeding programs, record keeping, presenting educational programs, etc. Must be willing to work weekends/holidays. Starting salary \$16,000-\$21,000 with year-end bonus and benefits. Excellent growth potential. Salary commensurate with experience. Send resumé/references to: Washington Zoological Park, 19525 S.E. 54th, Issaquah, WA 98027. Position open until filled.

Opportunity Knocks, Continued

The following positions are available at the Baltimore Zoo, Baltimore, MD. For all positions submit resumé to: Personnel Dept., Baltimore Zoo, Druid Hill Park, Baltimore, MD 21217. Deadline for acceptance of applications is 30 October 1994.

ANIMAL KEEPERS/Mammal Dept....individuals are to provide care and maintenance of animals and their exhibits. Seeking individuals with primate experience. Each candidate must have one year's paid experience. Under the direct supervision of a Senior Keeper and/or Curator.

SENIOR KEEPER/Mammal Dept....seeking individual to supervise and coordinate daily activities of Animal Keepers working with primates (working supervisory position). Position requires three (3) years animal experience, including primate experience (Chimpanzee experience preferred, behavior modification experience desired), and a BS degree.



A Second Reminder on the project that just won't die....

The Exhibit Design Resource Notebook

*submitted by Michael Demlong, EDRN Coordinator
The Phoenix Zoo, Phoenix, AZ*

Like the mythical Phoenix bird, once again the Exhibit Design Resource Notebook (EDRN) has risen from the ashes! For one reason or another this project has never quite gotten off the ground - mostly due to a lack of participation by AAZK members. Fortunately our Board of Directors, and EDRN Committee members David Morrow, Mary Wykstra-Ross, and myself believe the project has merit and we are making one last effort to see it to publication.

Many AAZK members will probably remember this project, others may not so I'll briefly review the project's objectives. The purpose of the EDRN is to document existing animal exhibits at zoos and aquaria in North America and other continents. To do this we have produced a comprehensive survey form, to compile exhibit information on all species of animals: invertebrates, fish, mammals, birds, herps, and amphibians. The finished EDRN is intended to serve as a reference to facilitate the creation or improvement of zoo animal exhibits. We hope the notebook will provide useful exhibit design and maintenance information about specific animal species, to compliment, not substitute for a comprehensive research format.

To gather this information, we have developed a relatively painless survey form for caregivers to complete. With the participation of yourself and other keepers, we will consolidate the returned surveys into a notebook chock full of information on many types of animal exhibits. The EDRN is intended to be a starting point for keepers, design staff, and architects preparing to build or remodel an exhibit.

We invite you and your co-workers to be an altruist, and take the time to complete one or more EDRN forms. If you call or write me, I'll be glad to send you however many free forms you need. Besides needing completed survey forms, we also need financial support to cover copy services, stamps, and postcards to promote the EDRN project. If your zoo or local AAZK Chapter might be interested in helping to fund this project please let me know.

Thank you in anticipation for your support. Questions or suggestions or requests for further information should be sent to: Mike Demlong, Design Department, The Phoenix Zoo, 455 North Galvin Parkway, Phoenix, AZ 85008-3431; or call (602) 273-1341 Office Ext. 7326



AAZK Membership Application

Name _____ check here if renewal []

Address _____

City _____ State/Province _____ Zip _____

U.S. Members

- \$30.00 Professional/U.S.
Full-time Keepers
- \$25.00 Affiliate/U.S.
Other staff & volunteers
- \$25.00 Associate/U.S.
*Those not connected with
an animal facility*
- \$50.00 or up Contributing/U.S.
Individuals
- \$50.00 or up Institutional/U.S.
*Organizations / Institutions
(requires Board approval)*

Canadian Members

- \$35.00 Professional/Canada
Full-time Keepers
- \$30.00 Affiliate/Canada
Other staff & volunteers
- \$30.00 Associate/Canada
*Those not connected with
an animal facility*
- \$55.00 or up Contributing/Canada
Individuals
- \$55.00 or up Institutional/Canada
*Organizations / Institutions
(requires Board approval)*

International Members

- \$40.00 International
*All members outside U.S. &
Canada regardless of category*

Library Only

- \$20.00 Library
*Available only to
established libraries*

Zoo Affiliation (if any) _____

Zoo Address _____

Title _____

Work Area _____

My check is enclosed (AAZK, Inc.)

Please charge to my credit card

MASTERCARD _____ VISA _____

Card # _____ - _____ - _____ - _____

Name on card _____ Expiration Date _____

Signature _____

Mail this application to : AAZK Administrative Offices, Topeka Zoo, 635 S.W. Gage Blvd., Topeka, KS 66606-2066 U.S.A. Make checks/money orders payable to AAZK, Inc. Must be in U.S. FUNDS ONLY.

Membership includes a subscription to Animal Keepers' Forum. The membership card is good for free admission to many zoos and aquariums in the U.S. and Canada.

American Association
of Zoo Keepers, Inc.
635 S.W. Gage Blvd.
Topeka, KS 66606-2066

Address Correction Requested



National Zoological Park
NZP Library
Washington, DC 20008
3/95

NON-PROFIT ORGANIZATION
U.S. POSTAGE PAID
PERMIT #646
TOPEKA, KS 66603

October 1994

16
548
V-18

ANIMAL



K
E
E
P
E
R
S'
F
O
R
U
M

dicated to Professional Animal Care

ANIMAL KEEPERS' FORUM, 635 S.W. Gage Blvd., Topeka, KS 66606
Phone: 1-800-242-4519 (U.S.) 1-800-468-1966 (Canada) FAX 913-273-1980

Managing Editor: Susan Chan

October 1994

Associate Editors/Enrichment Options Coordinators:

Volume Twenty-one

Kayla Grams, Topeka Zoo & Gretchen Ziegler, Wildlife Safari Park

Number Ten

Book Review Coordinators: Melba T. Brown, National Zoo and Tom Aversa, Franklin Park Zoo
Legislative Outlook Column Coordinator: Phyl Nilson Wojcik, John Ball Zoo

Animal Keepers' Forum (ISSN 0164-9531) is a monthly journal of the American Association of Zoo Keepers, Inc. Ten dollars of each membership fee goes toward the annual publication costs of Animal Keepers' Forum. Third Class postage paid at Topeka, KS. Postmaster: Please send address changes to:

American Association of Zoo Keepers, Inc.

Administrative Offices, 635 S.W. Gage Blvd., Topeka, KS 66606-2066
Barbara Manspeaker, Administrative Secretary

Acting Executive Director: Ed Hansen, AAZK, Inc.

BOARD OF DIRECTORS

Janet McCoy, Metro Washington Park Zoo, Portland, OR 97221-2799
Rachél Rogers, San Diego Zoo, San Diego, CA 92112
Mark de Denus, Assiniboine Park Zoo, Winnipeg, Manitoba, Canada
Alan Baker, Burnet Park Zoo, Syracuse, NY 13204-2504
Ric Urban, Houston Zoological Garden, Houston, TX 77030

*President
Vice President*

COMMITTEES

Nominations & Elections

By-laws

Chair - Vacancy

Chair - Vacancy

Conservation, Preservation & Restoration

Ethics

Chair - Brett Sellers, Metro Washington Park Zoo

Chair - Rachél Watkins Rogers, San Diego Zoo

Annual Conferences

Research/Grants

Coordinator - Ed Hansen, AAZK, Inc.

Chair - Susan Barnard, Zoo Atlanta

Awards

Publications Funding

Chair - Anna Michel, Metro Washington Park Zoo

David Luce, Chaffee Zoological of Fresno

Exhibit Design Resource Notebook

AAZK Chapter Logo Products

Michael Demlong, Phoenix Zoo

Vacancy

AAZK Inspection Standards Manual

Enrichment Committee

Rachél Watkins Rogers, San Diego Zoo

Dianna Frisch, Columbus Zoo

MEMBERSHIP SERVICES

L.I.N.K. Coordinator

Animal Data Transfer Form

Mark de Denus, Assiniboine Park Zoo

Bernie Feldman, Burnet Park Zoo

Zoo University List

Staff Exchange

Mike Illig, Metro Washington Park Zoo

Dale Frerking, Kansas City Zoo

Keeper Accommodations List

AAZK Historian

Todd Cleveland, Denver Zoo

Heidi Fowle, Discovery Island

International Affairs

Lesa Scheifele, Norwich, CT - Coordinator Foreign AAZK Members/Sister Organizations

Lois Johannes, L. A. Zoo - Coordinator Foreign Keeper Sponsorship Program

AAZK Training Materials

Laura Treschel, Continuing Education Coordinator, Minnesota Zoological Gardens

Christina Simmons, Keeper Training Package Coordinator, San Diego Zoo

PRESIDENTIAL ADVISORS

AZA Liaison

Elephant Managers Association

Ed Hansen, IPP, AAZK, Inc.

Ron Ringer, San Diego Zoo

Bowling for Rhinos

CAZPA Liaison

Patty Pearthree, Indianapolis Zoo

Tom Mantil, Metro Toronto Zoo

AAZK PUBLICATIONS : CONTINUING DATA COLLECTION

Zoo Infant Development Project - Harmony Frazier, Woodland Park Zoo (Mammals)

Teri Maas/Maggie Liguori, Philadelphia Zoo (Birds/Nonpasserines); Kim Livingstone, L.A. Zoo (Passerines)

Jeanne Boccongelli, Newark Museum Mini-Zoo (Reptiles); Linelle Lone, Denver Zoo (Amphibians)

Diet Notebook, Mammals, Vol. II - Susan Bunn Spencer, Grand Rapids, MI



printed on recycled paper

Table of Contents

Scoops & Scuttlebutt.....	334
AAZK Announces New Professional/Contributing Members.....	335
Coming Events.....	336
In Memory of David Morrow.....	337
1994 AAZK/AKF Award Recipients.....	338 - 340
Financial Report from Ngare Sergoi Support Group.....	342
Latest Rhino Populations Show Some Increases.....	343
Births & Hatchings.....	344 - 345
Assistance Please.....	345
From the AAZK Board - Ric Urban's Oversight.....	346
Notice to Members on Renewal Procedures.....	348
Research and Captive Propagation Workshop Held in Germany.....	349
Zoonotic Diseases Order Form.....	350
Book Review (Restraint and Handling of Wild and Domestic Animals).....	351 - 352
Enrichment Options.....	353
Distemper Virus Decimating Serengeti Lion Population.....	354
Renovations Large and Small: The Waikiki Aquarium Gets A Facelift.....	355 - 358
DOWN UNDER - New Tree Kangaroo Species Discovered.....	359 - 360
UFAW Presents 1994 Awards.....	360
Kruger Elephant Translocation Update.....	361
Chapter News.....	362 - 363
Publications Available.....	363
Legislative News.....	365 - 366
Opportunity Knock.....	368

Information for Contributors

Animal Keepers's Forum publishes original papers and news items of interest to the animal keeping profession. Non-members are welcome to submit articles for consideration.

Articles should be typed or hand-printed and double-spaced. All illustrations, graphs, charts and tables should be clearly marked, in final form, and should fit in a page size **no greater than 15cm x 25½cm (6" x 10")**. Literature used should be cited in the text (Brown, 1986) and alphabetically in final bibliography. Avoid footnotes. Include scientific name of species (as per ISIS) the first time it is used. Thereafter use common name. Use metric system for weights and measurements (standard equivalents may be noted in parenthesis). Use the continental dating system (day-month-year). Times should be listed as per the 24-hour clock (0800, 1630 hrs. etc.). Black and white photos only are accepted. Color slides should be converted to black and white prints (minimum size 3" x 5") before submission. Clearly marked captions should accompany photos. Please list photo credit.

Articles sent to *Animal Keepers' Forum* will be reviewed by the editorial staff for publication. Articles of a research or technical nature will be submitted to one or more of the zoo professionals who serve as referees for *AKF*. No commitment is made to the author, but an effort will be made to publish articles as soon as possible. Lengthy articles may be separated into monthly installments at the discretion of the editor. The editor reserves the right to edit material without consultation unless approval is requested in writing by the author. Materials submitted will not be returned unless accompanied by a stamped, self-addressed envelope. Telephone or FAX contributions of late-breaking news or last-minute insertions are accepted as space allows. However, long articles must be sent by U.S. mail. Phone is (913) 272-5821 Ext. 31. FAX (913) 273-1980.

**DEADLINE FOR EACH EDITION IS THE 15TH
OF THE PRECEDING MONTH**

Articles printed do not necessarily reflect the opinions of the
Animal Keepers' Forum editorial staff or
the American Association of Zoo Keepers, Inc.
Publication does not indicate endorsement by the Association.

Items in this publication may be reprinted providing credit to this publication is given and a copy of the reprinted material is forwarded to the editor. Reprints of material appearing in this journal may be ordered from the editor. Back issues are available for \$2.00 each.

*This month's cover features a Jaguar (*Panthera onca*) drawn by Stacy L. Palm, Animal Keeper at the Arizona-Sonora Desert Museum in Tucson, AZ. This 1.0 Jaguar named "Tigger" was a resident at ASDM for 20 years and died this past April at age 23. The Indians of Brazil save the fat of a Jaguar killed in the hunt and eat it believing that, like the potion of a sorcerer, it will give them great courage. The Jaguar is a soundless hunter which preys on peccaries and capybaras in its jungle habitat. While its rosette-patterned fur makes it invisible in dense undergrowth, the same fur also causes it to be hunted. The Jaguar is a good fisherman and also is an able swimmer. Jaguars are polyestrous, with a gestation period of 95-111 days after which a litter of from 1-4 cubs is born. Cubs remain with the mother for one to two years before beginning their solitary lifestyle. Thanks, Stacy!*

Scoops and Scuttlebutt

Central Florida AAZK Hold Fundraiser for National AAZK

The Central Florida AAZK Chapter, which has members at Sea World of Florida, Discovery Island, Central Florida Zoological Park and Silver Springs, has again held a successful fundraiser with the proceeds benefitting AAZK, Inc. This year the Chapter raffled off a 12" x 18" sculpture of a Velociraptor which was made and donated by Chapter member John Catapano. The realistic dinosaur sculpture was won by a security guard at Sea World in Orlando who had purchased his winning ticket only hours earlier. He was very excited to have won as his son is a dinosaur enthusiast. The drawing was held during a Central Florida AAZK Chapr Meeting/Social held at Discovery Island. The \$114.00 proceeds from the raffle have been donated to AAZK, Inc. to assist in general operating expenses.

The AAZK Board of Directors and the staff at Administratie Offices wish to thank the Central Florida Chapter for their continuing support of the Association through their annual fundraising efforts. It is gratifying to see such Chapter support.

AAZK Grants Available

The American Association of Zoo Keepers announces the availability of two \$750.00 research grants in the field of zoo biology. Interested applicants should direct their inquiries to: Sue Barnard, Chairperson, AAZK Research/Grants Committee, Zoo Atlanta, Department of Herpetology, 800 Cherokee Ave. S.E., Atlanta, GA 30315. The deadline for submissions is 1 March 1995.

Bowling for Rhinos Update

--submitted by BFR Coordinator Patty Pearthree

The money is still coming in but we are still waiting on about 20 Chapters to send in their money. BFR total is up to \$82,669.00 (as of 9/5/94) but it is extremely important to get all BFR money sent in as early as possible. Any Chapters that did not bowl but would like to help us get over \$100,000.00 are welcome to donate funds. Remember we need to go over \$100,000.00 before we can send funds to Ujung Kulon. The more we raise over \$100,000.00, the more money will be sent to Ujung Kulon and they desperately need the funds if the last 47 Javan rhinos are to survive! We need all the funds we can get this year and even the smallest donations are warmly welcomed! Make checks payable to: AAZK, Inc. - "Bowling for Rhinos" - and send to: Patty Pearthree, c/o "Bowling for Rhinos", P.O. Box 199026, Indianapolis, IN 46219-9026. Please call me at (317) 322-8723 if you have any problems or questions.

Scoops & Scuttlebutt, Continued

Columbus Zoo to Host Conservation Conference

The Columbus Zoo is pleased to announce that it will be hosting a conservation conference titled ZOOS: COMMITTING TO CONSERVATION from 13-16 July 1995. The goal is to bring together field researchers and zoo personnel from all levels in order to promote *in-situ* conservation. Examples of successful projects and how zoos served a vital supportive role will be our main focus. We hope to inspire and assist zoos that have yet to become involved in *in-situ* and use already existing projects as concrete examples of how a commitment to conservation is in the best interest of zoological institutions. In order to make our conference more affordable to all and increase the potential for networking, our registration fee will cover the cost of many social events and meals.

Tentative topics include: Connecting with a large conservation organization; Connecting with small N.G.O.'s; Sources for seed money; Environmental Education Projects; How to start a conservation project on \$1,000; Keeper-initiated conservation projects; Utilizing volunteer talent as a conservation resource; The role of zoos as a support infrastructure; Sponsorship of biologists in the field; and Assessing the benefits to indigenous people.

If you are interested in more information, would like to attend this conference or would like to present a paper please contact either Beth Armstrong/Ape House or Beth Pohl/Children's Zoo at The Columbus Zoo, Box 400, 9990 Riverside Drive, Powell, OH 43065-0400. Phone (614) 645-3426 or (614) 645-3442.



AAZK Announces New Professional/Contributing Members

Wm. L. Sampson, III, Buttonwood Park Zoo (MA)

Michael Bates, Utica Zoo (NY)

Jacqueline Eppolito, Academy of Nat. Sci. (MA)

Tony Barthel, Baltimore Zoo (MD)

Jay Mapp, Baltimore Zoo (MD)

Stacy Reed, King's Dominion Zoo (VA)

Sean Royals, The Zoo (FL)

Susan Kong, Miami Metro Zoo (FL)

John Brueggen, Discovery Island (FL)

Tammy Schmidt, Grassmere Wildlife Prk. (TN)

Judy Rhodes Effler, Knoxville Zoo (TN)

Joan Druyor, African Safari Wildlife Prk. (OH)

Jennifer Armstrong, African Safari Wildlife Prk. (OH)

Bill Coburn, African Safari Wildlife Prk. (OH)

John Krawczyk, Jr. African Safari Wildlife Prk. (OH)

Steve Nickloy, African Safari Wildlife Prk. (OH)

Justin Linestahl, African Wildlife Safari Prk. (OH)

Greg Schmit, The Dakota Zoo (ND)

Martha Turnbull, Denver Zoo (CO)

Sheila Lindquist, Denver Zoo (CO)

Paula Richet, Tautphaus Prk. Zoo (ID)

James Badman, Primate Foundation of Arizona

Lee Frecker, no zoo listed (AZ)

Peterson Benally, Navajo Nation Zoo (AZ)

Shane Siers, Honolulu Zoo (HI)

New Contributing Members

Robert Leslie Whitt, Director, Alexandria Zoological Park, Alexandria, VA

Renewing Contributing Members

Jeanette Rilling, Director, Exotic Animal Rescue, Ottsville, PA

Charles H. Hoessle, Director, St. Louis Zoological Park, St. Louis, MO

Dan Kohn, The Larson Company, Tucson, AZ



Coming Events

American Association of Zoo Veterinarians

October 23-27, 1994

Pittsburgh, PA

To be held at the Hyatt Regency Hotel. Workshops will take place on Sunday, 23 October. Conference will include sessions on reptiles and amphibians, nutrition, immobilization, avian species, primates, clinical and gross pathology, environmental enrichment, aquatic animal medicine, hoofstock and large mammals, carnivores and small mammals and case reports. In addition there will be both a student and graduate student competition and a poster session. For more information contact: Wilbur Amand, VMD, AAZV Executive Director, Philadelphia Zoo, 3400 W. Girard Ave., Philadelphia, PA 19104-1196; phone (215) 387-9094; FAX (215) 387-2165.

Association of Reptilian and Amphibian Veterinarians (ARAV)

October 22-23, 1994

Pittsburgh, PA

To be held in conjunction with the AAZV Conference listed above. This is the first conference for the ARAV and will include a general lecture session, a case report session and workshops on (1) basic reptile and amphibian medicine; (2) advanced reptile and amphibian medicine; and (3) pathology/necropsy techniques. For further information and registration materials contact Wilbur Amand at address given under AAZV listing.

Third Annual National Watchable Wildlife Conference

October 26-29, 1994

Burlington, VA

Theme is "Take A Closer Look". Conference will include workshops, panel discussions and hands-on interactive sessions. Fieldtrips for Vermont wildlife viewing included. For further information contact Hannah Kirchner or David Case at National Watchable Wildlife Conference, 607 Lincolnway West, Mishawaka, IN 46544 Tel: (219) 258-0100.

22nd Annual Conference of the International Marine Mammal Trainers Association (IMATA)

November 6-11, 1994

Tacoma, WA

Hosted by the Point Defiance Zoo & Aquarium, the conference will take place at the Tacoma Sheraton Hotel. Non-members of IMATA with an interest in training and behavior may wish to attend some of the conference sessions at daily registration rates. For further information contact: Kathy Sdao, Point Defiance Zoo & Aquarium, 5400 North Pearl St., Tacoma, WA 98407-3218, (206) 591-5337, FAX (206) 591-5448.

10th International Conference on Bear Research & Management

July 16-20, 1995

Fairbanks, AK

Sept. 11-14, 1995

Mora, Sweden

Theme is "Bears - Their Biology and Management." For both sessions, persons desiring to present papers must submit summaries of their proposed presentations. Summaries are due by 30 September 1994 for Fairbanks and by 30 October 1994 for Swedish-Norwegian sessions. For further information contact: Fairbanks - Harry Reynolds, 1300 College Rd., Fairbanks, AK 99701-1599, tel: (907) 452-1531, FAX: 907/452-6410; Sweden - Anders Bjarval, Naturvardsverket, @-171 85 Solna, Sweden, tel: Int. code + 46 8 799 10 00, Telfax: Int. code + 46 8 799 14 02.



In Memory of

David Morrow
July 10, 1975 - August 17, 1994

Many letters requesting information about AAZK, Inc. come across the desks at AO in Topeka. Most are routine, often driven by a school-directed project on career choices. But once and awhile there is an exception to this routine. Such was the case when a letter arrived from David Morrow, a teenager from Wichita, KS. Along with his request, David sent a profile of himself which revealed an uncommon maturity and sensitivity in a person so young.

David was born with Werdig-Hoffman disease, a disorder that deteriorates the body's muscle tissue. Despite being wheelchair-bound, David attacked life with enthusiasm and commitment. His dream was to someday open his own zoo which would be called Morrow's Ark. He envisioned it as a sanctuary for endangered animals and a place where people could come to learn about and better appreciate our fragile ecosystem.

David's drive and energy led him to an outstanding high school academic career, to establish his own home mini-business, to participation on the Mayor's Task Force to create a recycling program for his home town, and to study zoos worldwide in relation to their contributions to the preservation of various species. David's most recent endeavors had been pursuing college coursework in zoo science at Friends University in Wichita.

When David requested information about membership in AAZK, he anticipated gaining by such an association through the knowledge and resources AAZK would make available. But, more than that, he also wanted to contribute - to give back in full measure. He wanted to know how he could help AAZK.

Soon after becoming a member David took over the coordination of the Chapter Logo Products, keeping in touch with Chapters which produced the various products (T-shirts, pocket knives, bumper stickers, etc.), requesting necessary reporting to the Board, and assisting in any way he could to assure these projects' success. His great interest in zoos also led him to become involved in the Exhibit Design Project where he worked with Chair Mike Demlong producing computer-generated forms to gather information for the project.

His list of achievement was staggering. His motivation to achieve - Quality of Life. He said, "I know that I won't be able to significantly change the world, but I aspire to make it a nicer place for people and animals to coexist."

David's young life ended on August 17, 1994 - the disease which hadn't been able to dull his enthusiasm and curiosity throughout his 19 remarkable years, had finally won out. We will miss David.

A Memorial Fund in David's name has been established
at the Sedgwick County Zoo. Anyone wishing to contribute
may send donations to:

The David Morrow Memorial Fund
c/o Sedgwick County Zoo
5555 Zoo Boulevard
Wichita, KS 67212

1994 American Association of Zoo Keepers Awards

The following awards were presented at the 21st National AAZK Conference held in Omaha, NE from 9-13 October 1994. The Jean M. Hromadka Excellence in Zoo Keeping Award, Meritorious Achievement Award, Certificate of Merit for Zoo Keeper Education and Certificate of Excellence in Exhibit Renovation are selected by the AAZK Awards Committee from nominations received from the membership. Anna Michel, Metro Washington Park Zoo, Portland, OR chaired the Awards Committee this year. The Certificates of Recognition and Appreciation are given by the AAZK Board of Directors. The Excellence in Journalism Awards are selected by the editorial staff of Animal Keepers' Forum.

The Jean M. Hromadka Excellence in Zoo Keeper Award Recipients

In recognition of their professional attitude, true dedication, superb application of animal husbandry practices and contributions to the welfare of the animal life placed in their charge, AAZK presents the following individuals with this award:

Diane Callaway, Omaha's Henry Doorly Zoo, Omaha, NE

Specifically noted were outstanding efforts in husbandry of the Wyoming toad, Partula snail and Poison-arrow frog as well as her conservation and education work with teenagers.

Certificate of Merit for Zoo Keeper Education Recipient

In recognition of outstanding support of continuing education and keeper involvement in research projects, AAZK presents this award to:

Anne Bullied, Franklin Park Zoo, Boston, MA

For development and presentation of a 15-week "Parasites and Pathogens" course for the keepers of Franklin Park to better aid them in the understanding of treatment and prevention protocols.

Meritorious Achievement Award Recipient

In recognition of outstanding contributions in the field of wildlife conservation and education beyond the scope of regular zoo keeper duties, AAZK presents this award to:

Bill Wieczorek, Spring Brook Nature Center, Itasca, IL

Specifically noted were outstanding contributions to the field of wildlife rehabilitation and education through your "Raptors-in-Residence" Program.

Certificate of Excellence in Exhibit Renovation

In recognition of exceptional efforts in the renovation of an existing exhibit in order to better meet the physical and behavioral needs of a captive species.

Cheryl Frederick, Franklin Park Zoo, Boston, MA

Specifically note were her work and dedication in the renovation of the Potto exhibit at Franklin Park making this exhibit more enriching for the animals and educational for the public.

1994 AAZK/AKF Awards, Continued

Certificates of Recognition and Appreciation Recipients

These awards are given by the AAZK Board of Directors to individuals or groups who have provided volunteer efforts and/or services to the Association. Certificates of Appreciation are to recognize those outside the Association and Certificates of Recognition acknowledge contributions made by AAZK members on Association projects.

Certificates of Recognition Recipients

Harmony Frazier, Woodland Park Zoological Gardens, Seattle, WA

Kathleen Hunt, University of Washington, Seattle, WA

for serving as Co-Chairs and Co-Editors of the Zoo Infant Development Project, which resulted in the publication of a two-volume reference work on mother-reared zoo infants.

Ellen Bradfield, Zoo Atlanta, Atlanta, GA

in recognition of her service on the AAZK Board of Directors from January 1991 until May 1994.

Mike Light, Kings Island Wild Animal Habitat, Kings Island, OH

for serving as Nominations and Election Committee Chairperson for the 1993 AAZK Board of Directors Election.

Marilyn Cole, Metro Toronto Zoo, Toronto, Ontario, Canada

in recognition of her service as Chair of the Library Resources and Reference Search Projects.

Diane Callaway and Lisa Cuevas, Omaha's Henry Doorly Zoo, Omaha, NE

in recognition of their service to the Association by serving as Co-Chairs of the 21st National AAZK Conference

Norman Gershenson, San Francisco Zoo, San Francisco, CA

in recognition of his continued service and commitment to the Ecosystem Survival Plan through the Center for Ecosystem Survival.

Rosemary Krussman, National Aquarium at Baltimore, Baltimore, MD

in recognition of her work as Associate Coordinator for the Ecosystem Survival Plan and its innovative programs to preserve endangered rainforest habitat.

Andy Lodge, Ngare Sergoi Support Group, Inc., Columbus, OH

in recognition of his efforts to provide educational materials and school supplies to the Kenyan children living in close proximity to the Ngare Sergoi Rhino Sanctuary.

Jan Hixson, Washington Park Zoo, Portland, OR

in recognition of her efforts as Chair of the Portland Chapter's Exotic Pet Project which has provided vital information and advice to individuals considering keeping an exotic pet.

David Morrow, Wichita, KS

in special recognition of his efforts on behalf of Chapter Logo Products and the Exhibit Design Project

1994 AAZK/AKF Awards, Continued

Certificate of Appreciation Recipients

Dan Quinn, The Nature Conservancy, Washington, DC
*in appreciation of his support of the Ecosystem Survival Plan
and its innovative programs to preserve endangered rainforest habitat.*

Omaha's Henry Doorly Zoo, Omaha, NE
*in appreciation for serving as the Host Institution for the
21st National Conference of the American Association of Zoo Keepers, Inc.*

Woodland Park Zoological Gardens, Seattle, WA
*in recognition of their cooperation in and support of
The Zoo Infant Development Project*

The Center for Wildlife Conservation, Seattle, WA
*in recognition for their financial support for the publication of
The Zoo Infant Development Notebook*

Distinguished Service Plaque

was presented to
Omaha AAZK Chapter, Omaha, NE
for their service as the Hosts of the 1994 AAZK National Conference

Excellence in Journalism Awards

Outstanding Recognition: "Detection of Estrus in Guenther's Dik Dik Through Urinary Hormone Analysis and Behavioral Observation."

**Lisa J. Fitzgerald, Dallas Zoo, Dallas, TX and
John Hnida, Dept. of Biology, University of New Mexico**

Outstanding Recognition: "The Captive Management and Propagation of *Pongona vitticeps* - Inland Bearded Dragon"
Nanci Pintavalli, Columbus Zoo, Powell, OH

Outstanding Recognition: "Answers to Questions About Protected Contact Elephant Management"
Gary Priest, Zoological Society of San Diego

Outstanding Recognition: "Behavioral Architecture: Designing Animal Exhibits for Animals"
**Michael J. Demlong, The Phoenix Zoo, Phoenix, AZ and
Mary Deroo, Upper Darby, PA**

Outstanding Recognition: "Evaluation of Enrichment Devices for Captive North American River Otters"
Gina Sequeira, Psychology Dept./San Francisco State

Outstanding Recognition: "An Inexpensive Simulated Thundershower for Small Enclosures"
Chuck Smith, West Columbia, SC

Outstanding Cover Art: Guenther's Dik Dik (*Madoqua guentheri*)
Janie Hughes, Dallas Zoo, Dallas, TX





Quality exotic animal diets

SPECTRUM

**Nutritionally balanced
Fixed formulation • Economical**

When you need a complete line of high-quality dry and frozen animal diets for your feeding program, call Animal Spectrum.



*Frozen feline diets
Frozen bird of prey diets
Frozen canine diet
Chunk and chopped horsemeat,
hearts, livers, rib, shank,
knuckle bones, and tailbones*



Banana flavored psittacine/primate, 20% protein, dry
Banana flavored primate, Pro-Plus 25% protein dry
Leaf Eater primate dry *Omnivore dry*
Llama Vitamins & Minerals dry *Polar Bear dry*
Marmoset/Tamarin dry *Ratite dry*
Hoofstock supplement, with Selenium dry

BROOD-RITE HEATERS

*Bulbless heaters—nothing to break
Safe around all animals and
bedding material.
Even heat distribution in 240, 500,
or 750 wattages.*

One call does it all

**TOLL
FREE 1-800-228-4005**

Animal Spectrum, Inc.
P.O. Box 721
North Platte, NE 69101-0721

From the Ngare Sergoi Support Group

Final financial report of funds sent to Ngare Sergoi
from 1993 Bowling for Rhinos



*submitted by Andy Lodge, Coordinator,
Ngare Sergoi Support Group, Inc.*

Total monies received from Administrative Offices for the 1993 Bowling for Rhinos was \$110,000.00. Total sent to Ngare Sergoi Rhino Project was \$110,000.00. Following is a breakdown of payments and dates funds were disbursed. Due to the fluctuation of the Kenya Shilling, Ian Craig and Anna Merz have requested that rather than send all monies at once, I send monthly payments of \$8000.00 until the currency stabilizes.

BOWLING FOR RHINOS 1993

Date and amount received from National AAZK by Ngare Sergoi Support Group, Inc.

12 July 1993	\$25,000.00
08 August 1993	\$40,000.00
17 November 1993	\$35,000.00
12 January 1994	\$10,000.00
Total for 1993	\$110,000.00

Date and amount sent to Ngare Sergoi Rhino Project

14 September 1993	\$ 8,000.00
01 October 1993	\$ 8,000.00
08 October 1993	\$ 4,214.06 (sent to London for insurance on super cub airplane)
09 November 1993	\$ 8,000.00
24 November 1993	\$ 178.42 (rest of insurance payment on super cub)
01 December 1993	\$ 8,000.00
03 January 1994	\$ 8,000.00
01 February 1994	\$ 8,000.00
01 March 1994	\$ 8,000.00
04 April 1994	\$ 8,000.00
02 May 1994	\$ 8,000.00
07 June 1994	\$ 6,350.00 (replace engine in Lorry)
01 July 1994	\$ 8,000.00
01 August 1994	\$ 8,000.00
01 September 1994	\$ 3,257.52
Total	\$110,000.00

Total Received from Bowling for Rhinos 1993	\$110,000.00
Total sent to Ngare Sergoi Rhino Project	\$110,000.00



Latest Rhino Population Estimates Show Some Increases

According to the latest population estimates from the African Rhino Specialist Group (AfRSG), approximately 9,000+ rhinos exist on the African continent today. The group listed an estimated Black rhino population of 2,550 with a White rhino population at approximately 6,750. Scientists are encouraged because, for the first time in many years, there is not a significant decline in population numbers. Dr. Tom Foose, AfRSG member noted that the Black rhino population has appeared to have stabilized, indicating in part that the sanctuary/intensive protection zone strategy in use in most countries appears to be succeeding.

May 1994 estimates by country of the two African rhino species are shown below:

<u>Country</u>	<u>White Rhino</u>	<u>Black Rhino</u>
Angola		10
Botswana	18▼	4▼
Cameroon		27▼
Ethopia		5▼
Kenya	87▲	417▲
Malawi		2
Mozambique	0?	45▼
Namibia	98▲	583▲
Rwanda		10▼
S. Africa	6,376▲	897▲
Sudan	0?	
Swaziland	33▼	4▼
Tanzania		132▼
Zaire	32▲	
Zambia	6	33▼
Zimbabwe	134▼	381▼

▲ = Upward Trend

▼ = Downward Trend

--excerpted in part from

African Wildlife Update,

July-August 1994



Births & Hatchings



Honolulu Zoo, Honolulu, HI...announces the following significant B&H from July 1993 through June 1994:

Mammals - 3.2.6 Warthog (*Phacochoerus aethiopicus*) [1st in zoo; 1.2.6 DNS]; 0.2 Addra gazelle (*Gazella dama ruficollis*) [E; 0.1 DNS]; 1.1.2 Great gray kangaroo (*Macropus giganteus*) [T]; 2.0 Ringtailed lemur (*Lemur catta*) [E; 1.0 DNS].

Birds - 0.0.1 American flamingo (*Phoenicopterus ruber*) [1st in zoo for at least 20 years]; 0.0.2 Turquoise parrot (*Neophema pulchella*) [E; 0.0.1 DNS]; 3.3 Nene (*Branta sandvicensis*) [E]; 0.0.7 Vulturine guineafowl (*Acryllium vulturinum*) [1st in zoo; 0.0.1 DNS]; 0.0.5 Magnificent bird-of-paradise (*Diphyllodes magnificus*) [T]; 0.1.2 Raggiana bird-of-paradise (*Paradisaea raggiana*) [T; 0.0.1 DNS]; 1.0 Superb bird-of-paradise (*Lophorina superba*) [T].

Reptiles - 0.0.13 Yellow-spotted Amazon river toad (*Poeclnemis unifilis*) [T; 0.0.3 DNS]; 0.0.32 African spurred tortoise (*Geochelone sulcata*) [T]; 0.0.2 Bibron's gecko (*Pachydactylus bibroni*) [1st in zoo; 0.0.1 DNS]; 0.0.14 Starred agama (*Agama stellio*) [1st in zoo; 0.0.2 DNS]; 0.0.4 Desert Spiny Lizard (*Sceloporus magister*) [1st in zoo; 0.0.2 DNS]; 0.0.8 Bos's monitor (*Varanus exanthematicus albigularis*) [1st in zoo]; 0.0.26 Granite spiny lizard (*Sceloporus orcutti*) [1st in zoo; 0.0.3 DNS]; and 0.0.2 Mauritius day gecko (*Phelsuma guimbeau*) [T]. submitted by Susan Brant, Honolulu Zoo, Honolulu, HI.

Discovery Island Zoological Park (Orlando, FL)...announces the following significant B&H from 30 June 1993 to 30 June 1994:

Mammals - 2.1 Red-handed tamarin (*Saguinus midas*) [CITES II; 1st for institution]; 1.1 White-fronted marmoset (*Callithrix geoffroyi*) [CITES II; 1st for institution]; 1.0 Collared lemur (*Eulemur fulvus collaris*) [CITES I].

Birds - 0.0.2 American flamingos (*Phoenicopterus ruber*) [CITES II]; 0.0.37 Scarlet ibis (*Eudocimus ruber*) [CITES II; 0.0.18 DNS]; 0.0.11 Blue and yellow macaw (*Ara ararauna*) [CITES II; 0.0.4 DNS]; 0.0.4 Black-necked swans (*Cygnus melanocoryphus*) [CITES II; 0.0.4 DNS]; 0.0.7 Black-necked aracari (*Pteroglossus aracari*) [CITES II; 0.0.1 DNS]; 0.0.4 Chestnut-fronted macaws (*Ara severa*) [CITES II; 0.0.4 DNS]; 0.0.1 Golden conure (*Aratinga guarouba*) [CITES I]; 0.0.4 Common screech owls (*Otus asio*) [CITES II/0.0.3 DNS; 1st for institution]; 0.0.4 Palawan peacock pheasant (*Polyplectron emphanum*) [CITES I; 0.0.1 DNS; 1st for institution]; and 0.0.1 Red lory (*Eos bornea*) [CITES II]. submitted by Jamie Sincage, Animal Care Specialist, Discovery Island Zoological Park, Orlando, FL.

Denver Zoo (Denver, Co)...reports the following significant B&H for May-August 1994:

Mammals - 0.0.2 Colobus monkey (*Colobus guereza kikuyuensis*) [CITES II; 0.0.1 DNS]; 0.0.3 Pygmy marmoset (*Callithrix pygmaea*) [CITES II; 0.0.3 DNS]; 0.0.4 Hooded capuchin (*Cebus apella cay*) [CITES II; 0.0.1 DNS]; 3.0 Arctic fox (*Canis lupus hudsonicus*) [CITES II, E; 2.0 DNS - 1st litter for this female and both deceased pups appeared to suffer from hydrocephalus]; 1.0 Roan antelope (*Hippotragus equinus*) [CITES II]; 0.2 Red kangaroo (*Megaleia rufa*) [T]; 3.2 Addra gazelle (*Gazella dama ruficollis*) [CITES I; 1.0 DNS]; 1.0 Bongo (*Tragelaphus eurycerus isaaci*) [CITES III].

Births & Hatchings, Continued

Birds - 0.0.3 Bartlett's bleeding heart dove (*Gallicolumba criniger*) [CITES II; 0.0.3 DNS]; 0.0.3 Blue-necked ostrich (*Struthio camelus molybdophanes*) [CITES I; 0.0.3 DNS]; 0.0.2 Snowy owl (*Nyctea scandiaca*) [CITES II; 0.0.2 DNS]; and 0.0.1 Orange-bellied leafbird (*Chloropsis hardwickei*) [1st for institution]. submitted by Vickie Kunter, Chapter Liaison, Rocky Mt. AAZK Chapter, Denver, CO.

Tautphaus Park Zoo (Idaho Falls, ID)...announces the following B&H for May through August 1994:

Mammals - 1.0 North American elk (*Cervus elaphus canadensis*) [assisted delivery due to breach presentation, successfully being hand-reared]; 1.0 Reeve's muntjac (*Muntiacus reevesi*) [1st successful rearing by these parents].

Birds - 0.0.3 Barrows goldeneye (*Bucephala islandica*) [0.0.2 DNS - 1st for facility]; 0.0.2 Mute swans (*Cygnus olor*) [1st for facility]. submitted by Wendi Stewart, Zookeeper, Tautphaus Park Zoo.



Assistance Please

Mammal Milk Needed for Lysozyme Study

Milk from any species of mammal is needed for a comparative study of milk lysozyme (EC 3.2.1.17; muramidase) activity. This study is intended to identify and characterize differences in milk which may be important in conservation efforts involving rearing of young animals. Although milk samples for all mammals are encouraged, we would particularly like to receive samples from the following species: Buffalo, Deer, Giraffe, Reindeer, Elk, Goat, Caribou, Cow, Camel, Llama, Sheep, Rabbit, Dog, Cat, Elephant, any Marine Mammal, Chimpanzee, Gorilla, Bear, Lion, Tiger, Horse, Pig, Zebra, Leopard and Rat. Ideally, we would like to receive a sample within 24 hours after a baby is born, one 7 days later, and one month later. However, any milk samples will be appreciated.

Milk samples need only be frozen and shipped on dry ice. We will pay for shipping and handling. Samples can be accepted until late January 1995.

If possible, colostrum - one week and one month samples are appreciated.

For further information, contact:

Joy Truesdale (708) 301-9161 or

Dr. Frank Pascoe, Dept. of Natural Sciences
College of St. Francis - Joliet, IL
Phone: (815) 740-3814
e-mail facnspascoe@vax.colsf.edu)

A British collector of zoo paraphernalia (guide-books, postcards, magazines *et cetera*) would like to exchange material with any others who share his interest. Contact John Tuson, Mill House, Yapton Road, Barnham, West Sussex, PO22 OBD, England.



From the AAZK Board of Directors.....

AAZK Board Overseers: Who are they and what are their responsibilities?

This is the third in a series of overviews of the responsibilities of each member of the AAZK Board of Directors. Each Board Member is assigned committees and/or projects to coordinate or oversee. The Board Overseite maintains communication with the Committee/Project Chair, advises them on the goals the Board would like to see accomplished, and encourages communication to the membership via AKF about the Committee/Project's progress. The Board Overseite also coordinates mid-year and annual reports to the Board for consideration of budget needs, appointees, resignations, and accounting of activities for report to the membership.

This month Ric Urban, Houston Zoological Gardens, will review his oversights. If you have any questions or suggestions for any of the committees, please contact either the Chair or appropriate Board member. Our Association is dependent on the collaborative efforts of our committees, chairs and membership.

Staff Exchange -Temporary Oversight

Chair: Dale Frerking, Kansas City Zoo

The Staff Exchange is a membership service that AAZK is proud to offer. It provides basic resource material with information helpful to persons interested in pursuing a reciprocal exchange with an employer in another zoological institution, or alternately, a working visit to another facility. Nearly 70 North American (and several foreign) institutions have become a part of this network. An institution that registers with this service is under no obligation to participate in any exchanges or visits. The Staff Exchange service is for information and assistance only and does not set up exchanges or visits.

Keeper Accommodation List (KAL)

Chair: Todd Cleveland, Denver Zoo

This service provides a list of keepers or other AAZK members who are willing to put up a fellow keeper for one or more nights. This list started in 1979 with several aims, primarily to help provide inexpensive accommodations for traveling keepers. This project also promotes contact among keepers, fellowship in the AAZK, and information exchange at the keeper level.

International Affairs Committee

Lesa Scheifele, Norwich, CT

Coordinator, Foreign AAZK Members/Sister Organizations

Lois Johannes, Los Angeles Zoo

Coordinator, Foreign Keeper Sponsorship Program

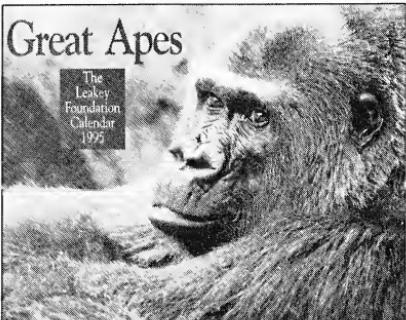
This program is to liase with AAZK members, zoological institutions, organizations and programs of interest to AAZK which are based outside of the continent of North America. Exchange of information and maintenance of useful contact for the benefit of animal care personnel are the primary goals of International Affairs.

The Foreign Keeper Sponsorship Program (FSP) will allow direct sponsorship of foreign animal care professionals, and also institutional sponsorship, by interested AAZK members and Chapters.

Enrichment Committee

This newly formed committee is to provide animal caregivers the means with which to stimulate and challenge the lives of the animals in their care. A central clearinghouse will be developed to provide assistance to begin and maintain an on-going enrichment program within their institution and a networking system for information exchange. AAZK members will be invited to share their ideas and involvement on enrichment with other members. This Committee will be formally presented at the Omaha Conference where it will be more fully defined and explained.





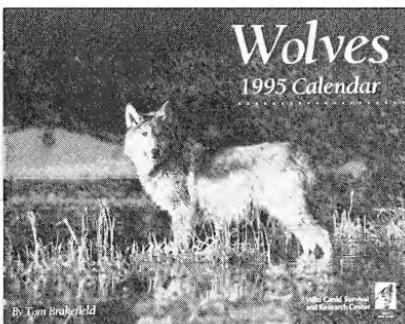
GREAT APES



PANDAS



WILD CATS OF NORTH AMERICA



WOLVES

Our Calendars Need No Care or Feeding...

....but they let you bring home some extraordinary wild animals. Each calendar includes a brief description of the animals pictured throughout the year. Monthly grids feature large blocks for keeping appointments, wild or domestic. Sales of each calendar benefit groups working to keep animals thriving in the wild. Order your favorite today and remember, they make great gifts, too!

\$10.99 each

MC/VISA orders call **1-800-338-2508** or use the coupon below:

Yes! Send me the following calendars at \$10.99 each plus shipping*:

GREAT APES

PANDAS

WILD CATS

WOLVES

*Include for shipping: U.S. - \$3.50 per location.

Foreign (**MC and VISA only**) - 1st class postage (min. \$8) will be billed.

Name _____

Street Address _____

City _____ State _____ Zip _____

Daytime phone (_____) _____

Check enclosed, or charge my MC VISA

Card # _____ Exp. date _____

**Send your order to Tide-mark Press, Dept. AKF,
P.O. Box 280311, East Hartford, CT 06128.**

Notice to Members on Membership Renewal Procedures

Over the years there seems to have been a considerable amount of confusion on the membership renewal process, especially in reference to how long a member is maintained on the AKF mailing list before being dropped. Hopefully the following outline will help explain the renewal process and if this format is followed by renewing members, there should be no interruption in their AAZK/AKF mailings.

1. Three months before a member's expiration date, a card notifying them of their need to renew their AAZK membership is sent.
2. At the beginning of the month in which an individual's membership is to expire, they are sent a "Final Reminder" card. If the member renews within the expiration month, there is no interruption in mailings. If a member fails to renew within that month, their name will be dropped off the active computer mailing list and they WILL NOT receive the next month's issue of AKF. (i.e. if you are due to renew in July and do not do so, you will not receive the August issue.)
3. If a member renews his/her membership after the expiration date, they will be reactivated on the mailing list. **HOWEVER**, depending on what time during the month the renewal is received, that person may end up missing up to two copies of the Forum. We have a cutoff date with our mailing service to provide them with the current label mailing list. If the renewal comes in after that date, that name will not be added to the list until the next month. This cutoff date is normally the 27-28th of each month as we try to have the current AKF in the mail the first Friday of each month.
4. After a member is dropped from the mailing list for (1) failure to renew or (2) failure to notify National Headquarters of an address change, and subsequently renews, they are NOT sent back issues which they may have missed due to late renewal or failure to notify National of an address change. These missed issues may be purchased for \$2.00 per copy, but will not be sent free.
5. Members are also reminded that the Association pays 35 cents return postage due for each AKF we receive back from the post office because of an outdated address. It is VERY important that members send in address changes ASAP to avoid this expense to AAZK. We want you to receive all your mailings in a timely fashion, but we need your help. Your prompt reply to your renewal notice and/or notification of address changes is greatly appreciated.

**Prompt Renewal Saves AAZK Time and Money
and Assures You Current Mailings**



Research and Captive Propagation Workshop Held in Germany

Proceedings Available Soon



In April 1994, the research working group of the European Endangered Species Program organized a workshop on concepts and approaches to research and captive propagation at the University of Erlangen-Nürnberg. The three-day meeting was attended by approximately 110 participants from 14 countries representing 20 zoological facilities. Methods, conceptual approaches and results of modern zoobiology were presented in more than 50 posters and some 30 talks. The talks were organized around the following sessions:

1. Reproduction: Modern methods of determining and influencing reproductive cycles, e.g. non-invasive hormone assessments or ultrasound, also with regard to applicability for "problem species", were reviewed and potential future possibilities like artificial insemination were discussed.

2. Genetics: The discussion centered around aspects of genetic variability, kin relationships and systematics, both of zoo and wild populations. Special aspects of "problem animal" (elephant, okapi, some primates) and genetic problems of restocking wild populations were presented.

3. Behavior and Ecology: The relevance of different mating and rearing systems for captive breeding, imprinting, learning, influences of conspecifics, particularly bonding partners on behavior, problems of behavioral stereotypies enrichment programs, activity rhythms, group formation, cognitive psychology.

4. Nutrition: The main emphasis lay on vitamin and mineral metabolism, food contents and food selection/food intake.

The proceedings of this workshop will be published (by the end of 1994) as a book titled "Research and Captive Propagation". This volume will present a overview of zoobiology by competent authors who will review their respective fields with reference to captive breeding and small population management. The book will be approximately 250 pages and each chapter will contain references for additional information. The pre-publication price is \$26.00 US; post-publication price will be \$30.00 US. Prices are subject to exchange rate adjustments. Postage is additional: \$3.00 Surface and \$15.00 Air Mail. Pre-publication prices will be honored until 31 December 1994.

To order send your name, zoo affiliation and complete mailing address along with the number of copies desired to: Dr. U. Gansloßer, Institut für Zoologie 1, Univ. Erlangen-Nürnberg, Staudtstr. 5, 91058 Erlangen, Germany.

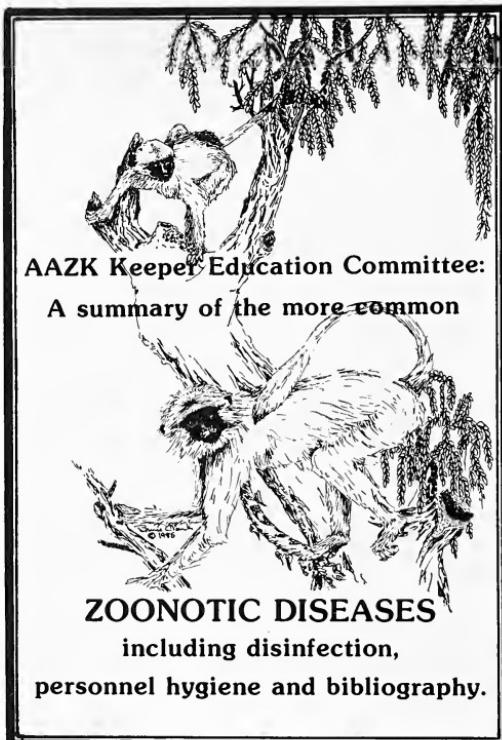


Bats in Their Bunkers



What was, up until 1991, the Pease Air Force Base in New Hampshire is now the Great Bay National Wildlife Refuge. Along with 1,000 acres of open land, the refuge inherited 15 concrete missile bunkers with massive doors and crude ventilation systems. Great Bay's wildlife managers, playing the hand they were dealt, are hoping that local bat populations will find the bunkers a congenial home. But bats won't just roost anywhere - the temperature, humidity, and air circulation have to be just right. So, temperatures and airflow in the bunkers will be monitored for a year, and if they look okay, platforms will be built near the bunkers' ceilings, as roosting spots. Then it's up to the bats. *Audubon via Nature News, The Nature Book Society.*

Announcing. . . .



AAZK is pleased to announce the availability of the publication entitled ZOONOTIC DISEASES. This 56-page booklet details the most common zoonotic diseases, offers guidelines for preventive control and covers personal hygiene and disinfection procedures.

The booklet, a cooperative effort produced by the AAZK Education Committee, is produced in an 8 1/2" by 11" format, hole-punched for insertion in a standard three-ring binder (not included).

Copies may be purchased by completing the order form below. Prices are: \$2.00 for Professional AAZK Members; \$3.50 for other AAZK membership categories; and \$5.00 for non-members. This price includes both postage and handling. Order from: Zoonotic Diseases, c/o AAZK National Headquarters, 635 Gage Blvd., Topeka, KS 66606. Make check payable to "AAZK".

ZOONOTIC DISEASES ORDER FORM

(Please Print)

Please send _____ copy/copies of the AAZK Zoonotic Diseases Handbook to:

NAME: _____

ADDRESS: _____

CITY: _____ STATE: _____ ZIP: _____

MEMBERSHIP CATEGORY: P__ AF__ AS__ INST__ NON-MEM__

TOTAL AMOUNT INCLUDED: \$_____

Please allow 2-4 weeks for delivery at Book Rate. IMPORTANT: Those ordering outside of the Continental U.S. (including Canada) should send an additional \$3.00 for Air Mail service.

SEND ORDER FORM AND CHECK OR MONEY ORDER (U.S. Currency only, please) MADE PAYABLE TO "AAZK, Inc." to: *Zoonotic Diseases, c/o AAZK, Inc., 635 S.W. Gage Blvd., Topeka, KS 66606-2066.*



Book Review

Restraint and Handling of Wild and Domestic Animals

By Murray E. Fowler c. 1978 (1991, 8th printing)

Iowa State University Press, Ames, IA

Hardcover \$38.95

*Review by Patti L. Raley, Naturalist
Brukner Nature Center, Troy, OH*

Guidelines for restraint and handling of the five classes of vertebrates are presented in Murray E. Fowler's comprehensive, well-organized, and authoritative book, Restraint and Handling of Wild and Domestic Animals. The clarity with which this book is written, coupled with the broad appeal of its contents make this a book that deserves a place on the reference shelf of all animal handlers, whether they be naturalists, research assistants, veterinary students, or zoo keepers.

In his preface Dr. Fowler states that "it is only through an enlightened understanding of restraint principles that humane handling with the least amount of stress will be possible for any animal." His thoughts on the humane considerations of restraint procedures indicate that he is veterinarian with a commitment to doing what is best for the animal as well as getting the job done. Fowler considers four basic factors for selecting restraint techniques: 1) safety to the handler; 2) safety to the animal; 3) will it do the job? and 4) get the animal back to normal. Throughout the text, Dr. Fowler addresses these factors and succeeds on all levels in providing an enlightened understanding of how to achieve them.

This book unfolds in three major sections: Part 1 presents general concepts of restraint principles; Part 2 considers domestic animals; Part 3 discusses wild animals.

In Part 1: General Concepts, emphasis is placed on the need for understanding an animal's normal activity period, its physiological condition (females in estrus, male cervids during rut), its social system, state of health, and territoriality, in order to successfully restrain it. Seven categories of restraint tools are thoroughly covered. In addition to mechanical tools, such as squeeze cages, nets and shields, Dr. Fowler discusses the value of the art of vocal and psychological restraint. And for anyone who may be a novice animal handler, the brief section that discusses the various ways in which animals defend themselves when approached and restrained is worth reading two or three times. (I recalled amusing experiences of learning first-hand the meaning of being "goosed" and of being anointed with turkey vulture vomit.)

Rope work is given an entire chapter that includes many illustrations and diagrams of rope types, knots, and rope use techniques. Tables listing rope fiber types and their advantages, disadvantages, and strength comparisons makes this a useful chapter. Well illustrated sections on tying rope slings will appeal to handlers of large animals.

In the chapter on chemical restraint, delivery systems (syringes, darts, blowguns) are discussed thoroughly, as well as the chemical and pharmacological properties of drugs commercially available in the United States. This chapter is clearly written, terms are fully explained, and a brief glossary is included to further demystify the material for the nonchemist.

The chapters on stress and thermoregulation are essential reading for all animal handlers, for they highlight the physiological processes of the stress syndrome and how to avoid it. Part 1 concludes with a chapter on medical problems that arise during restraint, and outlines precautions that can be taken to prevent or alleviate the potential medical

Book Reviews, Continued

problems. Hemorrhages, lacerations, rope burn, head and neck injuries, limb injuries, metabolic conditions, and regurgitation are discussed. Special problems of infant animals are included as well.

Part 2: Domestic Animals considers all types of domestic animals including large hoofed mammals, laboratory animals, dogs, cats, poultry and waterfowl. For each group of animals genera names, and epithets of young animals, are given. Weights of sex and age classes are tabulated for ease of reference. These chapters on domestic animals are brimming with photographs of handling techniques deemed best for each group, and where appropriate, the photos show how not to handle or restrain animals.

Part 3: Wild Animals includes chapters on monotremes and marsupials, small mammals, carnivores, primates, marine mammals, elephants, hooved stock, birds, reptiles, amphibians, and fish. These chapters are fully illustrated with photos, and contain such intriguing information as how to anesthetize toads and fish by immersing them in anesthetic solution. Anatomy, physiology, and danger potential of each group of animals is presented. Use of blindfolds for restraining many types of animals, use of plastic tubes for restraining small birds, intubation techniques for infant mammals, and chemical restraint for small mammals, are examples of the methods described in Part 3. And, if you have ever wondered how to sex a snake, trim an elephant's hangnails, or pick up a porcupine, Dr. Fowler's book has something for you.

Each chapter of Restraint and Handling of Wild and Domestic Animals is thoroughly referenced. This book was published in 1978, and even though the references are from literature of the 1970s and earlier, it will be many years before this text is considered outdated. One appealing feature that lends the book a classic quality is the chapter introductions that put each topic into historical perspective. Another feature is the easy-to-read text that makes this book an excellent resource for inexperienced handlers. Yet, its amazing scope makes it an essential reference for veteran animal handlers. Appendices give scientific names of species, which are kept to a minimum in the text, probably for ease of reading. Generic names of drugs, their common or trade names, and firms that supply the drugs appear in an appendix. A list of sources of restraint equipment and supplies is included. Metric conversion tables have been given space in the appendices as well. The index is complete and comprehensive. The attention paid to details of the book's general features contribute to its excellence as a reference work.

From the introduction to the index, Dr. Fowler has produced a book that never fails to instruct in the tone of a wise and patient mentor who wants to be certain that his pupils have understood. I highly recommend Restraint and Handling of Wild and Domestic Animals - it is well worth the price and certainly worth reading.

**THE
GOURMET
RODENT™**

RATS AND MICE

Bill & Marcia Brant

6115 SW 137th Avenue
Archer, FL 32618
(904) 495-9024
FAX (904) 495-9781

© All Rights Reserved

Visa MasterCard



AAZK Administrative Offices

1-800-242-4519 (U.S.)

1-800-468-1966 (Canada)

FAX (913) 273-1980



By Kayla Grams, Topeka Zoo and
Gretchen Ziegler, Wildlife Safari Park

BURROWING OWL - Burrowing owls nest underground and sometimes line their nest chamber with cow chips, supposedly to mask smell from predators. We gave our owls dried Javelina feces before their nesting season and they brought a small amount into their nest box. They were successful in laying a seven-egg clutch with two chicks hatching. Regardless if the feces aided in nesting, it was beneficial in providing a naturally enriched environment and is an excellent interpretive tool.

--Taylor Edwards, Animal Keeper
Arizona-Sonora Desert Museum, Tucson, AZ

PUMPKINS AS ENRICHMENT DEVICES

In January the Arizona-Sonora Desert Museum (ASDM) received a donation of pumpkins, which keepers used for enrichment of many animals. One of our successes was with Caracaras and Turkey vultures. We took whole pumpkins and cut several small triangular holes in them. We then filled the holes with chicken necks and mealworms and gave them to the birds. They had to manipulate the pumpkins and tear at them to get the treats out. They loved it! This also works with other birds such as Jays or Parrots, using fruits and nuts, as well as for mammals.

-- Lani Cleaver, Animal Keeper
Arizona-Sonora Desert Museum, Tucson, AZ

We have found an enrichment that is cheap and works for most of the zoo. In our great ape yards we plant pumpkins. The vines are used as nesting material and the blooms are sometimes eaten. The fruits make great toys as well as a favorite snack. All the great apes especially enjoy the center pulp and seeds. The last few years we have been able to grow more pumpkins than the apes would use so we have tried them all over the zoo. We had mixed reviews from other Primates, Capybara and Elephants, but Bears, Giant anteaters, River otters, African crested porcupine and Aldabra tortoise spent a great deal of time with them. The Grizzly bears and Giant anteaters really loved them. We cut small holes for the anteaters and they licked out the pulp. Pumpkins float so they make great toys in exhibits with pools. We would be curious to know how well they were liked in a Hippopotamus pool.

--Bruce Roberts, Great Ape Keeper
Little Rock Zoo, Little Rock, AR

MACAQUES - empty two-litre pop bottles with a handful of mixed nuts, seeds, mealworms, raisins, or any appropriate treat. Also good for feeding diet if diet is cut up in small sections. This takes adult Macaques up to two hours to get to the food items. Make sure there is one bottle for each animal. This idea is good for other primates, however, you may have to cut holes or leave the top off depending on the size of primate.

-- Teresa Winiger
Mesker Park Zoo, Evansville, IN



Distemper Virus Decimating Serengeti Lion Population

A virus, thought to be one similar to that which causes distemper in dogs, has killed approximately 30 percent of the lions in the southeastern section of the Serengeti National Park in recent months. The disease, which has yet to be contained, causes the lions to suffer epileptic seizures, odd muscle spasms, blindness and anemia before they die.

Dr. Melody E. Roelke-Parker, an American who serves as chief veterinary officer for Tanzania's national parks for the past two years, has been collecting blood and tissue samples from some 60 affected lions for analysis to learn more about the virus. Although the exact virus has yet to be positively identified, she says "it's a good bet" the Serengeti lions were infected by domestic dogs kept by Masai tribesmen. If so, the dogs could be vaccinated to prevent further spread of the disease. Currently there is no safe distemper vaccine for non-cannines.

She has sought the help of the Serengeti Lion Project, which has tracked the life patterns of 218 lions for the past 18 years. Of this group, at least 84 are known to have died from the virus, with some prides losing as many as 70% of their members. These figures do not, however, reflect the whole story as little is known about the health status of lions living in the Serengeti, Ngorongoro Conservation Area and Kenya's Masai Mara. An estimated 3,000 lions are thought to inhabit this vast areas of reserves.

Some of the questions Dr. Roelke-Parker is trying to answer include whether or not the disease sprang from the area's ecology and thus should be allowed to run its course or whether it is a novel virus introduced by man, thus requiring human intervention because the wildlife doesn't have the necessary immunological defenses to cope?

Says Dr. Roelke-Parker, "This is not a zoo. The philosophy here is hands off as much as possible. You intervene only when necessary or if it's a man-induced problem." Hers is the world's largest vet clinic: millions of animals inhabit 39,000 square miles of land, an area the size of Kentucky. She is the first wildlife veterinarian in Tanzania in two decades

In a note of interest to zookeepers, Dr. Roelke-Parker discovered during her dealings with scientists analyzing the Serengeti lion samples that big cats at four American zoos died of distemper last year.

--Topeka Capital-Journal excerpted from AP, Sept. 16, 1994



**SPECIAL OFFER FOR AAZK MEMBERS
EXTENDED THROUGH OCTOBER 31, 1994**

A GUIDE TO AMERICAN ZOOS & AQUARIUMS

by Darcy & Robert Folzenlogen

Visitor Information, Special Exhibits, Seasonal Festivals, Breeding Achievements & Research Activities for 173 Institutions
Recommended in the AAZK and AZAD journals!
Suggested Retail Price: \$16.95

Now only \$10.00 for AAZK members. Send this ad + \$10.00 to
Willow Press, 6053 S. Platte Canyon Rd., Littleton, CO 80123

Renovations Large and Small: The Waikiki Aquarium Gets A Facelift

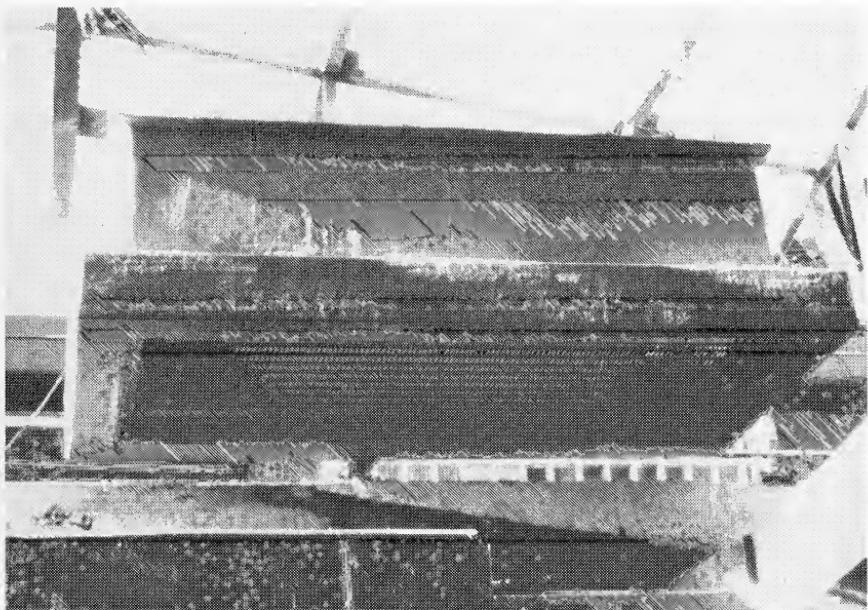
By

*Thomas M. Fenske, Aquarium Biologist II
Waikiki Aquarium, Honolulu, HI*

On 19 October, 1992 the Waikiki Aquarium closed its doors to undertake a major renovation project which would span 18 months. Phase A of our Master Plan for the facility included two of our four aquatic galleries, plus our reef predators exhibit, the Hawaiian monk seal habitat, the sea water system, and the front entry and parking lot. Once the funds were released, architecture plans finalized, and contractors selected, we anticipated no major problems tearing down and rebuilding the 45-year-old building.

The primary concern for the live exhibits department was to relocate fish, invertebrates, and mammals out of the construction zone. This meant closing down 30 of our 48 tanks plus the shark exhibit and seal pool. To accommodate this mass exodus of species, a number of temporary holding tanks were set up. This was no easy feat as water and air lines had to be installed as well as drain lines, plus electricity to run pumps and a few chillers.

Our primary move was to relocate our sharks. With the cooperation of the Hawaiian Institute of Marine Biology, an outdoor holding pen was established in Kaneohe Bay. One or two sharks per day were moved into the new holding area until all ten were established in their new home.



View from bottom of new shark exhibit showing the addition to the roof and the bio-filter for the new shark exhibit. (Photo by Thomas M. Fenske)



Pumps and filters after delivery to the Aquarium, also showing some of the renovations to the front entry area. (Photo by Thomas M. Fenske)

Next, after building an extra deck onto our marine mammal holding pool, we scheduled the move of our two Hawaiian monk seals (*Monachus schauinslandi*). Luckily the seals are crate-trained and, after some hesitant attempts, the move went very well.

Once the major exhibits were cleared, the staff focused their attention on the smaller tanks. One by one, tanks were emptied, animals moved, filters dismantled, and the area readied for demolition.

As jack hammers busted up the old concrete exhibits and hauled them off, some of the staff started to wonder what the replacement exhibits would look like. In the center of the building was a large hole where the new shark tank would be. Parts of the roof were cut out to make room for an extended ceiling above the shark tank. The lawn was destroyed as heavy equipment carted off the seal pool and front parking lot. Plywood walls went up where the front doors used to exist. Dust settled on everything. Power and water were shut off from time to time as the construction progressed. The scene was pretty grim.

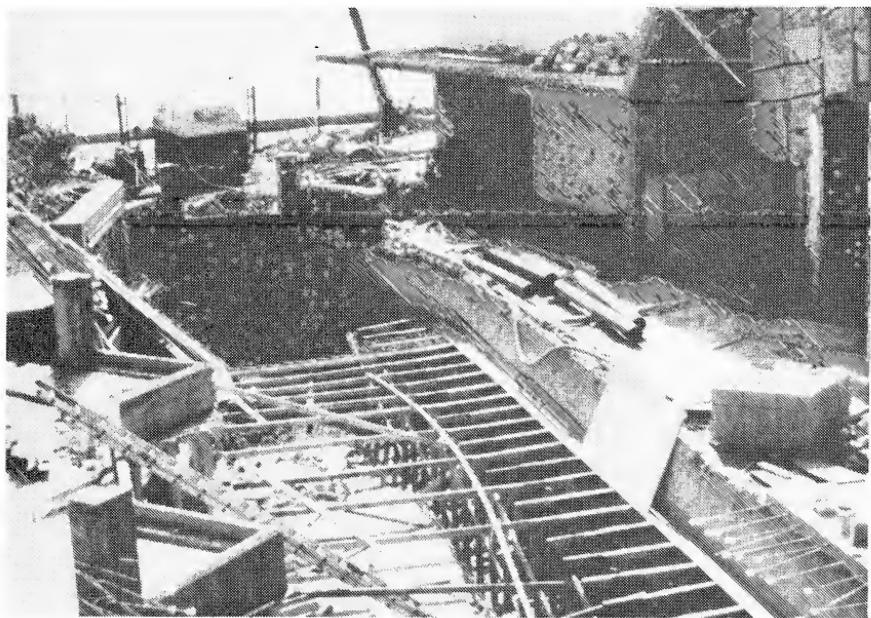
Suddenly large crates started arriving from various companies throughout the United States. These were new tanks, acrylic windows, pumps and filters. But someone had to put all this equipment together to make it into new habitats for our animals. Remember, we still had to care for and maintain all the animals while working on their new homes.

As concrete was being poured and walls were erected, the live exhibits' staff put their creativity to work to try to make rectangular tanks look like natural habitats. It was strenuous work diving in various locations checking out the habitats and then trying to duplicate them in aquariums.

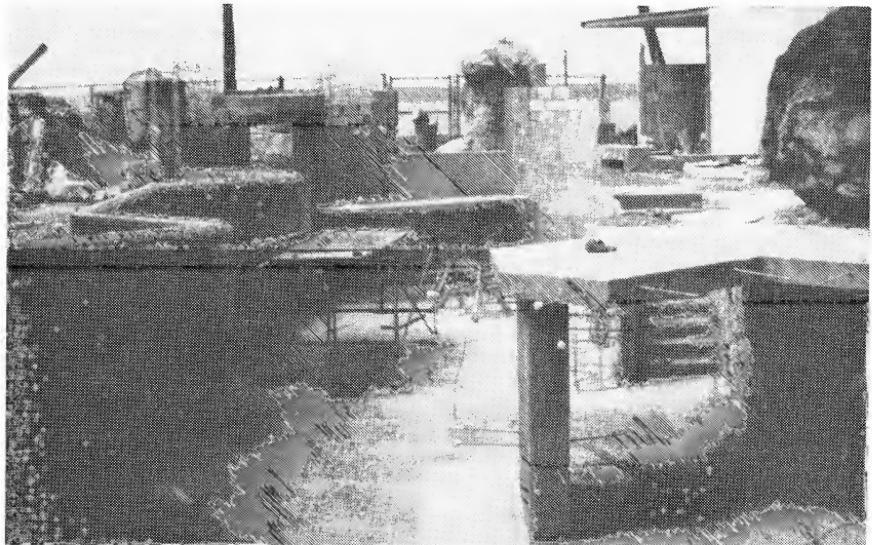
After a theme for an exhibit was approved, the staff would prepare models, design filtration systems, lighting, and species lists. For example, our "Surge Zone: Koko Head" exhibit required a wave-making device to create the surge plus brilliant lighting to keep the corals

Waikiki Aquarium Facelift, *Continued*

alive, and a filter to keep the water clear. Our "Living in Darkness" exhibit had to have simulated concrete and fiberglass rockwork, lighting to show off the fish but not distract from the theme, plus filtration. We repeated this effort for 26 exhibits!



Looking down on the construction of the new Hawaiian monk seal habitat. (*Photo by Thomas M. Fenske*)



From inside the new Hawaiian monk seal exhibit showing some of the construction. (*Photo by Thomas M. Fenske*)

Waikiki Aquarium Facelift. *Continued*

Slowly each exhibit started to take shape: the shark tank had walls, the Monk seal pool had rockwork, and the parking lot had asphalt. One by one, the fish and invertebrates moved from their temporary quarters to new permanent habitats.

Suddenly we found ourselves with a new Monk seal habitat. We carefully reintroduced the seals into a new home they had never seen. Then the shark exhibit was finished and we began the slow process of moving the sharks into their new home.



The framework for the ocean journey computer-generated graphic and education display wall. (Photo by Thomas M. Fenske)

Was the end of the construction finally in sight? The staff was looking forward to the reopening after a long and difficult project. But we had to take care of one last project behind-the-scenes: removing all the temporary tanks and related equipment.

Eighteen months after closing, the Waikiki Aquarium opened its doors to rave reviews. Over 62,000 people toured the exhibits during the first four weeks. The Waikiki Aquarium is not any larger but it is definitely much better. We are planning our next major renovation project, and maybe someday we can look forward to expansion.





DOWN UNDER

Coordinated By
Judie Steenberg, Keeper
Woodland Park Zoo
Seattle, WA

DOWN UNDER....is an information column about Australasian animals. While there are a number of Keepers who work in Australasian Units, or routines, oft times a Keeper will have a few species

of animals from the Australasian zoogeographical region on their string or routine. It is hoped this section will contain information on birds, mammals and reptiles.

This column is intended to:

- share experiences and information to improve the care and management of Australasian animals.
- seek information and advice on problems that occur.
- serve as a forum through which to make comment, to ask questions, to critique, or to verify information.

Please send your materials (a question, a paragraph or an article) directly to *Animal Keepers' Forum*, Topeka Zoological Park, 635 S.W. Gage Blvd., Topeka, KS 66606-2066,
Attn: Susan Chan.

New Tree Kangaroo Species Discovered

Dr. Tim Flannery, a senior research scientist at the Australian Museum in Sydney, has announced to the scientific community that a new species of tree kangaroo has been discovered on the southern slopes of the Mauke Mountain Range in central Irian Jaya, the Indonesian province on the island of New Guinea. According to Flannery, this previously unknown member of the marsupial family has bold, panda-like patterns in its thick fur and is about as large as a medium-sized dog.

Although it appears to be adapted for an arboreal lifestyle, the animal apparently spends most of its time on the ground, descending from trees like a human, hind feet first. At about 20 inches in length, its tail is the shortest of any kangaroo, relative to body size. Dr. Flannery noted that a large adult male might stand 30 inches tall and weigh some 30 pounds. In general, among ground-dwelling kangaroos the tail length usually equals body length. Tree kangaroos often have tails longer than their body length which are used as a counterbalance for an arboreal existence.

An expert in the fauna of Melanesia, Dr. Flannery first became aware of the existence of this animal through a photograph sent to him several years ago by a hunter. The photo showed a baby tree kangaroo only about as large as a half-grown cat. Realizing that it was not just your standard tree kangaroo, Flannery hoped to pursue more detailed information. In late 1993 he received a letter from P.T. Freeport Indonesia, a mining concern based in New Orleans, asking him to survey for animals in the region where the

DOWN UNDER, *Continued*

photo was taken. He began his survey last May. Dr. Flannery said the tree kangaroo appeared to live in a narrow band of dense, mossy pine forest about ten to eleven thousand feet up the mountain slopes. Tree kangaroos had never before been reported in that area.

The Moni tribe who inhabit part of this animal's range call it "bondegezou" which is roughly translated as "man of the forest" according to Dr. Flannery. "It's got an unusual threat response," he noted. "It raises its arms up above its head, exposing this big area of white belly letting out a whistle. The Moni people believe that this is the animal recognizing them and see it as a sign of their kinship with the animals so they don't hunt it." This tribal taboo may well have helped the timid creature survive.

Dr. Flannery said the first physical evidence of this animal was provided by items purchased from another local tribe, the Dani, who have no restrictions against hunting the kangaroo. The Dani frequently use the fur for hats and wear the claws and tail tips on necklaces. In questioning tribe members it was learned that unlike other tree kangaroos, this one was not an agile tree climber and did not leap from trees. Dani hunters lead the scientists to the animal, but they were unable to capture a live specimen. In mid-June, Dr. Flannery returned to Sydney with remnants of five tree kangaroos for laboratory study and analysis.

The discovery of this new species of tree kangaroo is the second new species of mammal discovered this year. Earlier in 1994 a new species of Muntjac, or barking deer, was found in the Vu Quang Preserve in Nghe Tinh Province, Vietnam.



UFAW Presents 1994 Awards

In August the Universities Federation for Animal Welfare presented two awards to zoological facilities recognizing their efforts in improving the lives of their animal collections. Knowsley Safari Park (Prescot, UK) received this year's UFAW Zoo Animal Welfare Award for its African Savannah Experience. The African Savannah Experience has extensive grasslands where the herd roams throughout the day, grazing in the abundant long grass and enjoying wallowing in the mud. Every evening the elephants are returned to their outdoor yard and house where they remain overnight. Knowsley has approximately 100 acres of grassland which means there is always fresh grazing available. If the weather is too bad for grazing, the herd is walked around the park for exercise and stimulation. The UFAW presents this award annually for a new or modified exhibit which is judged to provide improved conditions for the welfare of a particular species in captivity. It should also help the public appreciate the physical and behavioral needs of the animals.

Drusillas Zoo Park (Afriston, Sussex, UK) received the UFAW's Zoo Animal Welfare Innovation Award for their use of bungee cords in their primate enclosures. The cord has been used as an alternative to normal rope to suspend feeding containers, making meal time more of a challenge, and to suspend branches which produce natural branch movement. Bungee cord has also been used indoors in a criss-cross pattern where it provides a balancing challenge. This award is given by UFAW for a simple, inexpensive idea for a piece of equipment which improves the welfare of the animals, and which could easily be copied in zoos elsewhere.



Kruger Elephant Translocation Update

In the May-June 1994 issue of *African Wildlife Update*, it was reported that 80 elephants had been moved out of Kruger National Park by mid-May. The final tally for the operation, which concluded the end of May, is as follows:

- A total of 145 elephants (51.94) were translocated in intact family units.

- An additional 95 juveniles were translocated to buyers who did not want adult animals, bringing the total number of elephants translocated to 240.

- Seven elephants died during the translocation effort:

During Capture: Two elephants died during capture: one adult female suffocated from lying on her trunk, and one juvenile died during the loading process (cause of death uncertain).

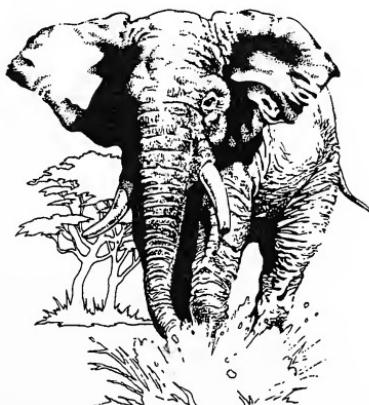
During Transport: Two juveniles from a truck load of eight elephants died when the vehicle in which they were being transported overturned in thick mist; the others were recovered unhurt.

After Translocation: Three animals were killed after escaping from their new home and presenting a threat to human life.

Ian J. Whyte, Senior Research Officer at Kruger, called the translocation "a great success, as we would rather take off our excess elephants alive if possible". He added that attention "probably needs to be given to prescribing the type of fencing to be used to restrain wild adult elephants for future translocations."

Elephant culling is now underway in Kruger. The culling quota has been reduced to reflect the number of elephants translocated as well as the deaths of 51 elephants (45.6) due to *Encephalomyocarditis*.

African Wildlife Update is a bimonthly publication of the African Wildlife Service. This highly informative publication publishes the latest news affecting African wildlife. It is available for a minimum contribution of \$15.00 (contributors living outside North America please add \$7 for air mail postage). Make checks payable to and send to: African Wildlife News Service, P.O. Box 546, Olympia, WA 98507-0546 USA.



Chapter News

AAZK is pleased to welcome two new Chapters into the Association. We wish them every success with their activities and projects. The new Chapter are:

Queens/Prospect Park Wildlife Center AAZK Chapter

This Chapter includes members from the Queens Wildlife Center and the Prospect Park Wildlife Center in New York. Their mailing address is 53-51 111th Street, Queens, NY 11368.

Officers for the Chapter are:

President.....Diane Bogdan
Vice Pres.....Lisa B. Eidlin (Queens)
Marian Glick-Bauer (Prospect Park)
Secretary.....Julie Simpson
Treasurer.....Angela Santaniello
Chapter Liaison.....Stacy Stanich

President Diane Bogdan reports the following:

On 6 August 1994, we held our first Bowling for Rhinos with great success. We would like to thank Barbara Manspeaker, Mark de Denus, Patty Pearthree and Ed Hansen for their patience in answering our many questions and the Staten Island Zoo for bowling with us.

We were able to raise \$959.00 for the Sanctuary as well as \$100.00 for our Chapter through T-shirt sales. Our top bowler was Jim Reeves of the Staten Island Zoo and Wild Animal Keeper Laura Greco of the Queens Wildlife Center raised the most sponsor money.

Our next event is a mixer at the Aquarium for Wildlife Conservation. We are also planning to hold round two of Zoo Trivia very soon.

Starting a Chapter is a difficult task but is definitely worth the effort. Our sincerest thanks to our Director Robin Dalton, Curator Dan Maloney, Regional Coordinator Frank Leonard and Bronx Chapter President Peter Psillas for all of their help. We couldn't have done it without them.

Wildlife Safari AAZK

This Chapter includes members from the Wildlife Safari, P.O. Box 1600, Winston, OR 97496.

Officers for the Chapter are:

President.....Gretchen Ziegler
Vice Pres/Sec'y.....Judy White
Treasurer.....Syndi Michael
Chapter Liaison.....Jean Smelt

Secretary Judy White reports the following :

"We are starting off slowly but surely with a small number of member, but we were able to participate with a larger chapter (Portland) during Bowling for Rhinos. Our first event will be sponsoring a barbecue for the Portland Chapter early this month. Our October meeting will entail establishing our Chapter goals and pursuing them along with some creative fundraisers. We are proud to be a part of such a great association.

Greater Houston AAZK Chapter

Kelly Creamer reported that the GHCAAZK held their annual Bowling for Rhinos fundraiser. Thirty-eight bowlers participated in the event raising approximately \$3900.00. All the proceeds made will be sent to the Ngare Sergoi Rhino Sanctuary in Kenya. About 30 spectators came out to cheer on the bowlers as they competed against each other for door prizes and overall awards.

Our Chapter would like to thank Kelly for all her hard work this year, as well as all the participants, sponsors and prize donors for making this one of our most successful Bowling for Rhinos events.

--Felicia M. Hill, Chapter Liaison

Rocky Mt. Chapter AAZK

The final tally in for this year's Bowling for Rhinos. We had only 19 bowlers (since everyone is involved in preparations for next year's conference we kept our BFR event very simple), but raised \$5,215.50. We are very proud of Christine Bobko for winning one of the

Chapter News, Continued

trips to Ngare Sergoi; Chris raised \$3,300.00. Way to go, Chris!

Speaking of conferences, the plans for next year are coming along. The Conference Committee meets twice each month and chairmen have been selected for all the various smaller committees. For those of you who are attending this year's Conference in Omaha, we hope you'll enjoy our little special presentation/invitation to come to Denver next year.

--Vickie Kunter, Chapter Liaison

Bergen County Regional AAZK Chapter

The Bergen County AAZK Chapter held its fourth annual Bowling for Rhinos event at the Lodi Lanes on 15 May. Everyone involved had a great time and we raised over \$2000.00 for the Ngare Sergoi Support Group.

Conservation Day was celebrated at our Zoo and our Chapter set up an exhibit which showed renewable resources harvested from the rainforest. We sold tropical fruit mix and offered face painting which was popular with the kids. All proceeds went to purchase rainforest acreage. Our Conservation Parking Meter continues to do well, we have collected \$6,000.00 to date.

We began a new fundraiser in January called "Snack of the Month". Each month we offer a new snack to sell to the keepers and so far it has been a success.

--Marianne Vella, Sec/Treas.



Publications Available

The Wisconsin Regional Primate Research Center, University of Wisconsin, Madison, has just published the second edition of the **International Directory of Primatology**. The purpose of the directory is to enhance communications among organizations and individuals involved in primate research, conservation and education. It can be used by primatologists as a desktop working tool or by guidance counselors, educators, librarians, students and the general public as a guide to primate programs and information resources.

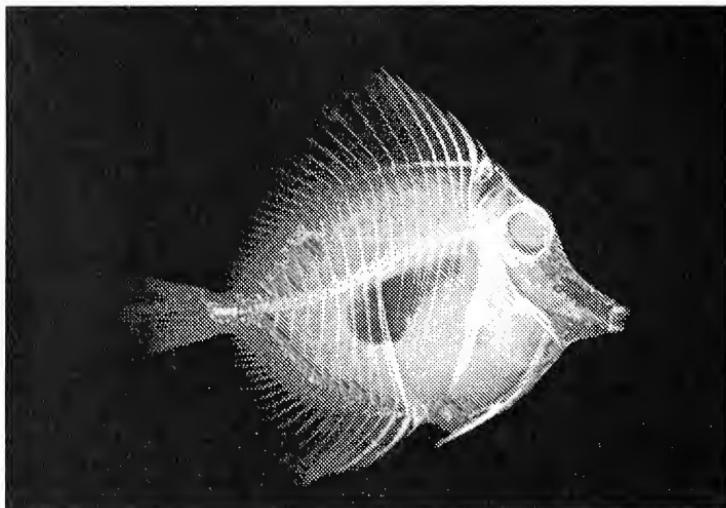
Coverage includes: 1) detailed entries for major primate centers, laboratories, educational programs, foundations, conservation agencies and sanctuaries; 2) a listing of primates held in zoological gardens worldwide; 3) professional primate societies, including the membership roster of the International Primatological Society; and 4) major information resources in the field. University and college libraries serving students in anthropology, psychology, conservation biology, and zoology will find this directory to be a useful reference tool.

Copies of the 1994 **International Directory of Primatology**, 2nd edition (354 pgs, spiral bound) are available in the USA for \$15.00 each, or in other countries for \$23.00 (US) each. These prices include postage and handling. To order a copy of the directory send payment (make checks or money orders payable to Wisconsin Regional Primate Research Center) along with your name, institution, complete mailing address and telephone number to: Larry Jacobsen, IDP Coordinator, Wisconsin Regional Primate Research Center Library, 1220 Capitol Court, Madison, WI 53715-1299 USA. Phone: 1 (608) 263-3512 Fax: 1 (608) 263-4031. E-mail: library@primate.wisc.edu. Phone, fax and email orders are welcome. We do not accept credit card orders.



X-RAY NOTECARDS

The Rocky Mountain AAZK Chapter, Denver, CO, is proud to offer specially produced animal X-ray notecards available for sale through our Chapter. These high quality black and white cards are printed on recycled paper and feature four designs of reproduced radiographs right from our hospital slides. Animals featured on the cards include: Yellow Tang (*Zebrasoma flavescens*) shown here, the Vampire Bat (*Desmodus rotundus*), the Tiger Salamander(*Ambystoma tigrinum*), and Chilean Flamingo (*Phoenicopterus chilensis*). The cards are sold in sets of 12 (three of each animal design) and promise to be a unique Chapter creation. Each box will be offered at \$10.00 each plus \$1.00 shipping and handling. This is a fundraiser to help support the 1995 AAZK National Conference to be held in Denver Sept. 24-28, 1995. Please use order form below, making checks or money orders payable to: Rocky Mtn. AAZK Conference Committee and send to the Chapter at the Denver Zoo, 2900 E. 23rd Ave., Denver, CO 80205.



Yellow Tang, *Zebrasoma flavescens*

YES! I have enclosed \$ _____ for _____ boxes of notecards

Please mail to me at:

Name: _____

Address: _____

City, State, Zip: _____

Legislative Outlook

*Compiled by
Phyllis Nilson-Wojcik
Legislative Advisor*



Imposition of Import Prohibition Against Taiwan

A memorandum signed by President Clinton prohibiting the importation into the U.S. of fish and wildlife products of Taiwan was published on 9 August 1994. This is the first time that sanctions have been brought against a country under the Fisherman's Protective Act of 1967 (The Pelly Amendment). The action was taken over the issue of trade by Taiwan in rhinoceros and tiger parts and products and followed the certification by the Secretary of the Interior that this trade was diminishing the effectiveness of CITES. The situation in Taiwan will continue to be reviewed, and U.S. authorities will continue to try to assist Taiwan in their efforts to eliminate illegal trade.

>*CITES UPDATE - August 1994 - U.S. Dept. of the Interior*

USFWS Outlines Proposals for Wolf Reintroduction Into Yellowstone and Central Idaho

The proposed rules outline how the Service would conduct reintroductions and the manner in which wolves would be managed once released. The rules address reintroduction methods and designation of wolves as "non-essential, experimental" under Section 10 of the Endangered Species Act. This provision of the Act allows federal and state resource agencies and private citizens greater flexibility in managing reintroduced animals. This would allow wolves to be killed, under certain conditions, if they are preying on livestock. Although unlikely, if wild populations of deer, elk, and other large game are severely affected by wolf predation, wolves could be moved under an approved management plan.

Under the Service's proposals, wolves within the boundaries of two areas - one in and near Yellowstone National Park and the other in and around the central Idaho wilderness area - would be designated as non-essential experimental. Neither of these areas currently support wolf packs.

The Service's current wolf management program in the northern Rocky Mountains allows the agency to move or kill the occasional wolf that preys on livestock, and that program would continue, in addition to allowing private property owners and livestock owners with grazing leases on public land to harass adult wolves without injuring them to discourage conflicts with domestic animals, but would also require those owners to report such incidents. On private property within the experimental areas, landowners could kill wolves in the act of wounding or killing livestock, but would be required to report the incident within 24 hours, and physical evidence of the attack would be required. Killing wolves on public land by private citizens would require a permit and would be an option only after attempts to relocate problem wolves had failed.

The Service proposes to establish wolf populations by reintroducing wild wolves from Alberta and British Columbia, Canada. Over the next 3-5 years, about 30 wolves annually (15 for each state) would be trapped in Canada and released in Yellowstone and on U.S. Forest Service lands in central Idaho.

Legislative Outlook, Continued

Two different release methods are proposed. In Yellowstone, groups of adults and their offspring would be placed in one-acre enclosures to allow them to acclimate to the area. After two months, they would be radio-collared and released. Biologists would then track movement and supplement feeding as needed. This method would encourage the animals to remain in or near the park.

The release in Idaho would consist of groups of young wolves from various packs, radio-collared and released on site. Due to the remoteness and rough terrain of the areas it is believed the wolves will remain within the area. It is also believed they will disperse, find mates and form packs within the area.

These rules were formed according to a final environmental impact statement on wolf reintroduction in these areas by the USFWS. Final rules will be published in the *Federal Register*, after additional public hearings.

>Dept. of Interior News Release - August 12, 1994.

Report Chronicles Progress in Endangered Species Recovery

Nearly 40% of plants and animals protected under the Endangered Species Act are now stable or improving, according to a report to Congress prepared by the Interior Department's USFWS. Of 711 U.S. listed species for the reporting period ending 28 Sept. 1992, ten percent were found to be improving and 28% were considered stable as a direct result of recovery efforts. The report - "Endangered and Threatened Species Recovery Program --Report to Congress" evaluates the recovery progress of all U.S. listed species and notes whether a species' status is improving, stable, declining, unknown, or extinct. This is the second such report. The first, covering species listed through October 1990, found about 40% of listed species stable or improving.

Among the recovery achievements documented in the report are the Aleutian Canada goose, which has rebounded from a low of 300 birds in 1967 to an estimated 7,900 during the winter of 1991/92. The Aleutian Canada goose was reclassified from endangered to threatened in 1990. New populations of the California condor and the Black-footed ferret, once extinct in the wild, have been reintroduced. The Bald eagle and Arctic and American peregrine falcons have also responded to recovery efforts, and the USFWS has proposed removing the Arctic peregrine from the threatened list.

The 1992 report found the percentage of species considered declining dropped from 38% to 33%, but those whose status is unknown climbed from 19% to 27%. Budgetary and staffing constraints within the Service were identified as reasons for the undetermined status. The 1992 report also estimated about 2% of listed species were believed to be extinct.

Of the 711 U.S. species included in the report, 410 or 58% had approved recovery plans. Draft plans had been developed for an additional 58 species. Of those remaining, 170 species have been listed for less than three years. Under a new policy recently announced by Interior Secretary Bruce Babbitt, recovery plans will be drafted within 18 months of a species' listing and completed within another year.

Copies of the report may be ordered for \$17.00 by calling the Superintendent of Documents at (202) 783-3238 using Mastercard or VISA, or by writing the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402-9325; ask for stock # 024-01000703-6.

>Dept. of the Interior Press Release, 21 July 1994



L.I.N.K.
(Liaison and Information Network for Keepers)

Coordinator for the LINK System: Mark de Denus, Assiniboine Park Zoo, 2355 Corydon Ave., Winnipeg, Manitoba, Canada R3P OR5. (204) 986-6921 [w]; (204) 837-2916 [h]. Assistant LINK Coordinator - Ric Urban, Houston Zoological Gardens, Houston, TX, 1513 MacGregor Way, Houston, TX 77030 (713) 520-3234 [w].

Regional Coordinators

ALABAMA - Fred Alvey, Zoo Atlanta, 800 Cherokee Ave. S.E., Atlanta, GA 30315

ALASKA - Vacancy

ARIZONA - Vacancy

ARKANSAS - Debbie Jackson or Ann Rademacher, Little Rock Zoological Gardens,
#1 Jonesboro Dr., Little Rock, AR 72205

CALIFORNIA (Northern)- Jean Lai, Oakland Zoo, 9777 Golf Links Rd., Oakland, CA 94605 and
Ruby Lara, Sacramento Zoo, 3930 West Land Park Dr., Sacramento, CA 95822-1123

CALIFORNIA (Southern) - Vacancy

COLORADO - Vacancy

CONNECTICUT- Jeanette Nadeau, Roger Williams Park Zoo, Providence, RI 02905

DELEWARE - Theresa Maas, Philadelphia Zoo, 34th & Girard Ave., Philadelphia, PA 19104

FLORIDA - Rick Smith, 5752 Stoneridge, Orlando, FL 32839

GEORGIA - Fred Alvey, Zoo Atlanta, 800 Cherokee Ave. S.E., Atlanta, GA 30315

HAWAII - Vacancy

IDAHO - Holly Liappas, Tautphaus Park Zoo, P.O. Box 50220, Idaho Falls, ID 83405

ILLINOIS - Pat Swieca, 5710 W. Cullom Ave., Chicago, IL 60634

INDIANA - Vacancy

IOWA - Carla Wieser, Omaha's Henry Doorly Zoo, 10th St. & Deer Park Blvd., Omaha, NE 68107

KANSAS - Vacancy

KENTUCKY - Scott Wright, Cleveland Metroparks Zoo, 3900 Brookside Park Dr., Cleveland, OH 44109

LOUISIANA - Rhonda Votino, 3535 Houma Blvd., Apt. 109, Metairie, LA 70006

MAINE - Jeanette Nadeau (see addresses under CT)

MARYLAND - Theresa Maas, Philadelphia Zoo, 34th & Girard Ave., Philadelphia, PA

MASSACHUSETTS - Jeanette Nadeau (see addresses under CT)

MICHIGAN - Tim Sampson, John Ball Zoo, 1300 W. Fulton, Grand Rapids, MI 49504

MINNESOTA - Tim Hill, Minnesota Zoological Gardens, 13000 Zoo Blvd., Apple Valley, MN 55124

MISSISSIPPI - Jeannie Frazier, Jackson Zoological Park, 2918 W. Capitol, Jackson, MS 39209

MISSOURI - Vacancy

MONTANA - Holly Liappas (see address under Idaho)

NEBRASKA -Carla Wieser (see address under Iowa)

NEVADA - Patricia Simonet, Wildlife Safaris, P.O. Box 6735, Incline Village, NV 89450

NEW HAMPSHIRE - Jeanette Nadeau (see addresses under CT)

NEW JERSEY - Frank Leonard, Bronx Zoo, 185th & Southern Blvd., Bronx, NY 10460

NEW MEXICO - Vacancy

EAST NEW YORK - Frank Leonard, Bronx Zoo, 185th & Southern Blvd., Bronx, NY 10460

WEST NEW YORK - Alan Baker, Burnet Park Zoo, 500 Burnet Park Dr., Syracuse, NY 13204

NORTH CAROLINA - Lucy Segerson, North Carolina Zoo, Rt. 4, Box 83, Asheboro, NC 27203

NORTH DAKOTA - Bob Debets, Assiniboine Park Zoo, 2355 Corydon Ave., Winnipeg, Manitoba
Canada R3P 0R5 (204) 986-6921 [w]

OHIO - Scott Wright, Cleveland Metroparks Zoo, 3900 Brookside Park Dr., Cleveland, OH 44109

OKLAHOMA - Debbie Jackson or Ann Rademacher (see addresses under AR)

OREGON - Anna Michel, Washington Park Zoo, 4001 SW Canyon Rd., Portland, OR 97221

PENNSYLVANIA - Theresa Maas, Philadelphia Zoo, 3400 W. Girard, Philadelphia, PA 19104

RHODE ISLAND - Jeanette Nadeau (see addresses under CT)

SOUTH CAROLINA - Lucy Segerson, North Carolina Zoo, Rt. 4, Box 83, Asheboro, NC 27203

SOUTH DAKOTA - Bob Debets (see address under ND)

TENNESSEE - Gail Karr or Cindy Pinger, Memphis Zoo & Aquarium, 2000 Galloway, Memphis, TN 38112

TEXAS - Connie Dieringer, Caldwell Zoo, P.O. Box 4280, Tyler, TX 75712

UTAH - Vacancy

VERMONT - Jeanette Nadeau (see addresses under CT)

VIRGINIA - Theresa Maas, Philadelphia Zoo, 34th & Girard , Philadelphia, PA 19104

WASHINGTON -Vacancy

WEST VIRGINIA - Theresa Maas, Philadelphia Zoo, 34th & Girard , Philadelphia, PA 19104

WISCONSIN -Wayne Hazlett, 3768 S. 89th St., Milwaukee, WI 53228

WYOMING - Holly Liappas (see address under Idaho)

DISTRICT OF COLUMBIA - Theresa Maas (see address under PA)

Province of Ontario - Vacancy

Provinces of Manitoba & Saskatchewan - Bob Debets (see address under ND)

Province of Quebec - Vacancy

Provinces of Alberta & British Columbia - Grant Tkachuk, 10139 157th St., #206, Edmonton, Alberta T5P 2T9

Atlantic Canada - Bernard Gallant, RR # 7, 1081 Ryan Road, Moncton, N.B., E1C 8Z4

Institutions wishing to advertise employment opportunities are asked to send pertinent data by the 15th of each month to: Opportunity Knocks/AKE, 635 Gage Blvd., Topeka, KS 66606. Please include closing dates for positions available. There is no charge for this service and phone-in listings of positions which become available close to deadline are accepted. Our phone is 1-800-242-4519 (U.S.); 1-800-468-1966 (Canada). Our FAX is 913-273-1980.

ANIMAL KEEPER...requires one year paid zoo experience or degree in related field. Applicants should be able to work well with the public. Duties include care, feeding, health/safety of animals; exhibit maintenance/interaction with the public. Pays \$5-\$6 per hour, housing may be possible. Send resume to: Judy Austin or Cathy Short, Kentucky Down Under, P.O. Box 189, Horse Cave, KY 42749.

COMMISSARY SUPERVISOR...requires Bachelor's degree in biology or related field with two years' experience as zookeeper; two years' experience in a zoo commissary desirable. Equivalent training would be eight years' experience in a zoo commissary, including three years' experience at supervisory level. Incumbent will oversee operation of commissary for diet preparation for approximately 1300 animals representing 300 species. Includes ordering, receiving, inventory, diet prep and supervision of a staff of seven. Must have good oral and written communication skills. Must have knowledge of animal nutrition, feeds and feeding, and animal natural histories; must possess computer skills and ability to learn software for analysis of animal diets. Salary \$22,568.00 plus benefits. Send resumé by 31 October 1994 to: Human Resources Division, North Carolina Zoological Park, 4401 Zoo Parkway, Asheboro, NC 27203.

ASSISTANT ELEPHANT TRAINER...this position requires a Bachelor's degree in zoology or animal science, plus at least two years' experience working with both adult and young Asian elephants. Applicant must have good speaking skills and experience presenting elephant demonstrations. Contact: Don Bloomer, Entertainment Department, Nugget Hotel/Casino, P.O. Box 797, Sparks, NV 89432.

ANIMAL DEPARTMENT SUPERVISOR...requires a degree in an animal management related field and extensive experience working with wild and exotic animals; five years' experience in supervising department staff and overseeing animal care and exhibit maintenance/design. Applicant will be responsible for maintaining the park's animals in respect to housing, cleaning, diet, health, training, well-being and enrichment. Applicant will also need experience in acquiring specimens, record keeping, complying with state and federal regulatory agencies, personnel administrative duties and budget management. Individual must be a motivated self starter able to design, produce, and oversee on-site as well as outreach educational programs. Working knowledge of computer programs (Word Perfect 5.1 and Quattro-Pro) a plus. Send salary history and resumé by 11 November 1994 to: S. Bastides, Six Flags Magic Mountain, Human Resources, P.O. Box 5500, Valencia, CA 91385.

The following two (2) positons are available with the Commonwealth Zoological Corporation (Franklin Park Zoo) Boston, MA. Competitive salary and benefits for both positions. Please send resumé and cover letter to: Jennifer Golden, Commonwealth Zoological Corporation, One Franklin Park Road, Boston, MA. EOE.

SENIOR ZOOKEEPER...requires two years' zookeeping experience and high school diploma/GED; college degree in related field preferable. Hands-on supervisory position requiring strong written/oral communication skills.

ZOOKEEPER...requires one year zookeeping experience and a high school diploma/GED; college degree in related field preferable.



AAZK Membership Application

Name _____ *check here if renewal []*

Address _____

City _____ State/Province _____ Zip _____

U.S. Members

- \$30.00 Professional/U.S.
Full-time Keepers
- \$25.00 Affiliate/U.S.
Other staff & volunteers
- \$25.00 Associate/U.S.
*Those not connected with
an animal facility*
- \$50.00 or up Contributing/U.S.
Individuals
- \$50.00 or up Institutional/U.S.
*Organizations / Institutions
(requires Board approval)*

Canadian Members

- \$35.00 Professional/Canada
Full-time Keepers
- \$30.00 Affiliate/Canada
Other staff & volunteers
- \$30.00 Associate/Canada
*Those not connected with
an animal facility*
- \$55.00 or up Contributing/Canada
Individuals
- \$55.00 or up Institutional/Canada
*Organizations / Institutions
(requires Board approval)*

International Members

- \$40.00 International
*All members outside U.S. &
Canada regardless of category*

Library Only

- \$20.00 Library
*Available only to
established libraries*

Zoo Affiliation (if any) _____

Zoo Address _____

Title _____

Work Area _____

My check is enclosed (AAZK, Inc.) Please charge to my credit card

MASTERCARD _____ VISA _____ Card # _____ - _____ - _____ - _____

Name on card _____ Expiration Date _____

Signature _____

Mail this application to : AAZK Administrative Offices, Topeka Zoo, 635 S.W. Gage Blvd., Topeka, KS 66606-2066 U.S.A. Make checks/money orders payable to AAZK, Inc. Must be in U.S. FUNDS ONLY.

Membership includes a subscription to Animal Keepers' Forum. The membership card is good for free admission to many zoos and aquariums in the U.S. and Canada.

of Zoo Keepers, Inc.
635 S.w. Gage Blvd.

Topeka, KS 66606-2066

Address Correction Requested



National
NZF Zoological Park
Library
Washington
. DC
20008

3/95

NON-PROFIT ORGANIZATION
U.S. POSTAGE
PAID

PERMIT #646
TOPEKA, KS 66603

November 1994

SL
76
A598
N2P



Animal Keepers' Forum

ANIMAL KEEPERS' FORUM, 635 S.W. Gage Blvd., Topeka, KS 66606-2066
Phone: 1-800-242-4519 (U.S.) 1-800-468-1966 (Canada) FAX 913-273-1980

Managing Editor: Susan Chan

Associate Editors/Enrichment Options Coordinators:

Kayla Grams, Arizona-Sonora Desert Museum & Gretchen Ziegler, Wildlife Safari

November 1994

Book Review Coordinator: Melba T. Brown, National Zoo

Volume Twenty-one

Legislative Outlook Column Coordinator: Phyl Nilson Wojcik, John Ball Zoo

Number Eleven

Animal Keepers' Forum (ISSN 0164-9531) is a monthly journal of the American Association of Zoo Keepers, Inc. Ten dollars of each membership fee goes toward the annual publication costs of ***Animal Keepers' Forum***. Third Class postage paid at Topeka, KS. Postmaster: Please send address changes to:

American Association of Zoo Keepers, Inc.

Administrative Offices, 635 S.W. Gage Blvd., Topeka, KS 66606-2066

Barbara Manspeaker, Administrative Secretary

Executive Director: Ed Hansen, AAZK, Inc.

BOARD OF DIRECTORS

Janet McCoy, Metro Washington Park Zoo, Portland, OR 97221-2799

President

Rachél Rogers, San Diego Zoo, San Diego, CA 92112

Vice President

Mark de Denus, Assiniboine Park Zoo, Winnipeg, Manitoba, Canada

Alan Baker, Burnet Park Zoo, Syracuse, NY 13204-2504

Ric Urban, Houston Zoological Garden, Houston, TX 77030

Marilyn Cole, Metro Toronto Zoo, Toronto, Ontario, Canada

Diana Callaway, Omaha's Henry Doorly Zoo, Omaha, NE 68107-2200

COMMITTEES

Nominations & Elections

Chair - Vacancy

By-laws

Chair - Vacancy

Conservation, Preservation & Restoration

Chair - Brett Sellers, Metro Washington Park Zoo

Ethics

Chair - Rachél Watkins Rogers, San Diego Zoo

Annual Conferences

Coordinator - Ed Hansen, AAZK, Inc.

Research/Grants

Chair - Susan Barnard, Zoo Atlanta

Awards

Chair - Anna Michel, Metro Washington Park Zoo

Publications Funding

Exhibit Design Resource Notebook

David Luce, Chaffee Zoological of Fresno

Michael Demlong, The Phoenix Zoo

AAZK Chapter Logo Products

AAZK Inspection Standards Manual

Vacancy

Rachél Watkins Rogers, San Diego Zoo

Enrichment Committee

Dianna Frisch, Columbus Zoo

MEMBERSHIP SERVICES

L.I.N.K. Coordinator

Mark de Denus, Assiniboine Park Zoo

Animal Data Transfer Form

Zoo University List

Mike Illig, Metro Washington Park Zoo

Bernie Feldman, Burnet Park Zoo

Keeper Accommodations List

Staff Exchange

Todd Cleveland, Denver Zoo

Dale Frerking, Kansas City Zoo

International Outreach

AAZK Historian

Lesa Scheifele, Norwich, CT - Coordinator Foreign AAZK Members/Sister Organizations

Heidi Fowle, Discovery Island

Lois Johannes, L. A. Zoo - Coordinator Foreign Keeper Sponsorship Program

Kathy Kelly, National Zoo - Project M.A.R.C. (Making A Realistic Contribution)

AAZK Training Materials

Laura Treschel, Continuing Education Coordinator, Minnesota Zoological Gardens

Christina Simmons, Keeper Training Package Coordinator, San Diego Zoo

PRESIDENTIAL ADVISORS

AAZ Liaison

Ed Hansen, IPP, AAZK, Inc.

Elephant Managers Association

Bowling for Rhinos

Dinah Wilson, Marine World Africa USA

Patty Pearthree, Indianapolis Zoo

CAZPA Liaison

Tom Mantil, Metro Toronto Zoo

AAZK PUBLICATIONS - CONTINUING DATA COLLECTION

Zoo Infant Development Project

Teri Maas/Maggie Liguori, Philadelphia Zoo (Birds/Nonpasserines); Kim Livingstone, L.A. Zoo (Passerines)

Jeanne Bocconcelli, Newark Museum Mini-Zoo (Reptiles); Linelle Lone, Denver Zoo (Amphibians)

Diet Notebook, Mammals, Vol. II - Susan Bunn Spencer, Grand Rapids, MI



printed on recycled paper

Table of Contents

Scoops & Scuttlebutt.....	370 - 371
Message from the President.....	372
Coming Events.....	373 - 374
Births & Hatchings.....	376 - 377
Elephant Managers Association Holds 1994 Gathering in Canada.....	377
From the Conference Committee.....	378
AAZK Board Oversight - Board Member Alan Baker.....	379
1994 Conference Proceedings Information and Order Form.....	380 - 381
Saving the Javan Rhino.....	382 - 383
Internet Directory Seeks to Link-Up Zoo World.....	384
Mammal Milk Needed for Lysozyme Study: Assistance Request.....	384
The Exhibit Design Resource Notebook: An Update from the Coordinator.....	385
Book Review (Raptors: Birds of Prey).....	386
AAZK Announces New Professional/Contributing Members.....	386
AAZK Book Sale.....	387
Enrichment Options.....	388
AZA Presents Awards at Atlanta Conference.....	389
Zoo Infant Development Project/Final Notes and Order Form.....	390 - 391
L.I.N.K. List of Regional Coordinators.....	392
Handedness in Captive Red Ruffed Lemurs.....	398 - 399
The Frozen Zoo.....	399
Legislative Outlook.....	400 - 402
Opportunity Knocks.....	403 - 404

Information for Contributors

Animal Keepers's Forum publishes original papers and news items of interest to the animal keeping profession. Non-members are welcome to submit articles for consideration.

Articles should be typed or hand-printed and double-spaced. All illustrations, graphs, charts and tables should be clearly marked, in final form, and should fit in a page size **no greater than 15cm x 25½cm (6" x 10")**. Literature used should be cited in the text (Brown, 1986) and alphabetically in final bibliography. Avoid footnotes. Include scientific name of species (as per ISIS) the first time it is used. Thereafter use common name. Use metric system for weights and measurements (standard equivalents may be noted in parenthesis). Use the continental dating system (day-month-year). Times should be listed as per the 24-hour clock (0800, 1630 hrs. etc.). Black and white photos **only** are accepted. Color slides should be converted to black and white prints (minimum size 3" x 5") before submission. Clearly marked captions should accompany photos. Please list photo credit.

Articles sent to *Animal Keepers' Forum* will be reviewed by the editorial staff for publication. Articles of a research or technical nature will be submitted to one or more of the zoo professionals who serve as referees for *AKF*. No commitment is made to the author, but an effort will be made to publish articles as soon as possible. Lengthy articles may be separated into monthly installments at the discretion of the editor. The editor reserves the right to edit material without consultation unless approval is requested in writing by the author. Materials submitted will not be returned unless accompanied by a stamped, self-addressed envelope. Telephone or FAX contributions of late-breaking news or last-minute insertions are accepted as space allows. However, long articles must be sent by U.S. mail. Phone is (913) 272-5821 Ext. 31. FAX (913) 273-1980.

DEADLINE FOR EACH EDITION IS THE 15TH OF THE PRECEDING MONTH

Articles printed do not necessarily reflect the opinions of the
Animal Keepers' Forum editorial staff or
the American Association of Zoo Keepers, Inc.
Publication does not indicate endorsement by the Association.

Items in this publication may be reprinted providing credit to this publication is given and a copy of the reprinted material is forwarded to the editor. Reprints of material appearing in this journal may be ordered from the editor. Back issues are available for \$2.00 each.

This month's cover features the Mandrill (*Mandrillus sphinx*), an Old World primate native to the African forests. The male's brightly colored face and posterior is not only ornamental but serves as a keep-away sign to other species. The males also have two long, strong canine teeth to use for self defense. The females are more neutrally colored and lack the large canines. Mandrills live in family groups of one male, one or more females and their young. They are vegetarians although will occasionally eat carrion. The artwork is from the book *Monkeys, Apes and Other Primates*, one of a large series of books published by the Young Discovery Library. Michael Dillon, owner of this company and an AAZK Associate member, has offered AAZK/AKF gratis use of the illustrations from these remarkable children's books. All inquiries on the Young Discovery Library should be sent to: P.O. Box 229 - Ossining, NY 10562. Thanks, Michael!

Scoops and Scuttlebutt

Associate Editor Relocates to Arizona

Kayla Grams, who has served as an Associate Editor for *AKF* for the past four years, has left the Topeka Zoo to take a position at the Arizona-Sonora Desert Museum in Tucson, AZ. While we will certainly miss Kayla's on-site contributions to the journal, we wish her much success in her new position at ASDM. She and Co-Associate Editor Gretchen Ziegler, who left Topeka for the Wildlife Safari in Winston, OR last year, will remain active in helping to get the *AKF* out to the membership. They will continue to coordinate the monthly Enrichment Options Column, and will soon hopefully be able to further contribute their expertise via e-mail with Managing Editor Susan Chan. Upgrading of the computer equipment at AAZK Administrative Offices will allow for such electronic networking among the editorial staff.

In another *AKF*-related item, Book Review Co-coordinator Tom Aversa, Franklin Park Zoo, has resigned his position. Tom has handled the reviewing process for technical books included in the journal's Book Review section. We sincerely appreciate all of Tom's efforts on behalf of *AKF* over the past several years. Before officially giving up his duties, Tom plans to try and collect and make available for publication any outstanding book reviews. Individuals who have asked to review a book are reminded that in exchange for getting to keep the book they review, they are required to submit a review for *AKF*.

Melba Brown, National Zoo, will continue in her duties as Book Review Co-coordinator. Melba has been handling the book reviewing process for more general interest books. She will coordinate all book reviews until staff has time to reevaluate the committee and determine its direction. If anyone is interested in either helping in coordinating book reviews or in reviewing a book, they should contact Susan Chan at AO.

Capron Park Chapter Donates to AAZK, Inc.

The Capron Park Zoo AAZK Chapter (Attleboro, MA) held a fundraising raffle of items donated by their Education Dept., Zoological Society, Gift Shop, and members. They have generously donated half the profits of this raffle to AAZK, Inc. for use in the general operations budget. Their donation will help meet the expenses of AAZK's 800 phone service for a month. Having the 800 phone line offers easy access to AAZK staff for members having questions or needing assistance. The staff at Administrative Office and the Board of Directors wish to thank all members of the Capron Park Zoo AAZK Chapter for their support of the Association.

Scoops & Scuttlebutt, Continued

Three Corrections to Note

AKF readers are asked to be aware of the following three corrections:

Page 310 - Sept. Issue: due to an administrative error in the material submitted, the Madagascar-California Alliance was represented as associated with the keeper work-trip to Madagascar: "Creative Conservation Projects". The Madagascar-California Alliance is not and has never been associated with this trip.

Page 342 - Oct. Issue: under the financial report from the Ngare Sergoi Support Group, a line showing the June 1, 1994 disbursement of \$8,000.00 to the Sanctuary was inadvertently left out.

Page 350 - Oct. Issue: the advertisement and order form which appeared for Zoonotic Diseases was incorrect. An old negative, which gave information and prices about an earlier edition of this publication, was inadvertently put in rather than the one giving the current pricing information. The current edition of Zoonotic Diseases costs \$6.50 for AAZK members and \$10.00 for Non-members. Canadian and overseas orders should add \$3.00 for Air Mail shipping.

We regret any inconvenience or misunderstanding these errors may have caused.

AAZK Grants Available

The American Association of Zoo Keepers announces the availability of two \$750.00 research grants in the field of zoo biology. Interested applicants should direct their inquiries to: Sue Barnard, Chairperson, AAZK Research/Grants Committee, Zoo Atlanta, Department of Herpetology, 800 Cherokee Ave. S.E., Atlanta, GA 30315. The deadline for submissions is 1 March 1995.

ADT Forms Available Upon Request

Animal Data Transfer Forms for zoos and aquariums are available free of charge upon request. This is a professional service provided by AAZK. Contact: Bernie Feldman, Burnet Park Zoo, One Conservation Road, Syracuse, NY 13204. If your facility is not already using the ADT form, please encourage your administration to implement its use whenever an animal is shipped.

Call for Papers Issued

The 1995 AZA Southern Regional Conference, hosted by the Jackson Zoological Park, will be held at the Walthall Hotel in Jackson, MS from 9-11 April 1995. The theme is "Common Ground, All Zoos Great and Small". Abstracts are now being accepted on issues related to 1) Animal Husbandry (research, training, enrichment, etc.) 2) Education of public and employee with particular emphasis on visitor programs and classroom teacher services. 3) Marketing and Development, and 4) Grounds Maintenance including exhibit design and renovation, facility management and security. The goal is to provide a wide, yet focused, series of informative 20-minute talks directly relating to progressive zoo operation. Send abstracts to the Program Committee, Jackson Zoological Park, 2918 West Capitol Street, Jackson, MS 39209.



Message from the President

I would like to thank Diane Callaway, Lisa Cuevas and the Omaha AAZK Chapter for putting on the 1994 AAZK National Conference. Not only did we have an educational experience during the day and with evening workshops, but had the chance to dance til one o'clock to the tunes of some really great bands. Dr. Simmons and his staff at the Henry Doorly Zoo were gracious and hospitable hosts.

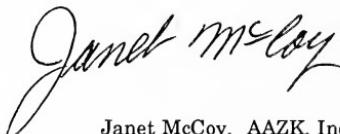
The Board has filled the two positions vacated by Ellen Bradfield, Zoo Atlanta, and Ed Hansen, Reid Park Zoo. Seven people sent in resumés for the vacancies and interviews were held at the Conference. The two appointed to fill these unexpired terms are Marilyn Cole, Metro Toronto Zoo, who will serve as 4th BOD member; and Diane Callaway, Omaha's Henry Doorly Zoo, who will serve as 5th BOD member. Marilyn and Diane will serve until after the upcoming election.

Elections for full-term positions on the AAZK Board of Directors will be held in 1995. Those interested in running for a Board position need to refer to the nomination forms which may be found in the July 1994 issue of AKF and will be published again in the December 1994 issue. Forms must be completed and returned to the NEC Chair by 31 January 1995. Ballots will be sent to all Professional members in late spring with elected Board members taking their seats following the Denver Conference.

The By-laws change, Article VI, Section 1d - Executive Director, was approved at the General Membership Meeting held during the Omaha Conference. The Board interviewed and hired Ed Hansen as our first AAZK Executive Director. Among his main duties will be keeping the membership informed of changes in the 501(c)(3) laws, working on long-range planning and fundraising for the Association, and overseeing operations at the Administrative Offices in Topeka. Ed will also oversee AAZK Conferences which will allow for continuity in information exchange and protocol for future Conference Committees.

The Zoo Infant Development Notebook was previewed at the Omaha Conference and is now available. It is composed of 1800+ pages in a two-volume set. For the first 90 days of ZIDP sales (until 10 January 1995) AAZK members **only** may purchase this important reference work for \$90.00. After this introductory time frame, the price will be \$125.00 for members. The price for non-members is \$150.00. You will find an order form elsewhere in this issue of AKF.

The Board is looking forward to working with Marilyn and Diane and are anticipating an exciting year for the Association.



Janet McCoy, AAZK, Inc. President
Washington Park Zoo
Portland, OR

Information Please

I am interested in knowing if anyone who works with the handlable animals in their Education Center weighs the animals and, if so, how often do you weigh them? Please send any information to: Maria Browning - Children's Zoo, San Antonio Zoo, 3903 N. St. Mary's St., San Antonio, TX 78212.



Coming Events

22nd Annual Conference of the International Marine Mammal Trainers Association (IMATA)

November 6-11, 1994

Tacoma, WA

Hosted by the Point Defiance Zoo & Aquarium, the conference will take place at the Tacoma Sheraton Hotel. Non-members of IMATA with an interest in training and behavior may wish to attend some of the conference sessions at daily registration rates. For further information contact: Kathy Sdao, Point Defiance Zoo & Aquarium, 5400 North Pearl St., Tacoma, WA 98407-3218, (206) 591-5337, FAX (206) 591-5448.

The Exploitation of Mammals

November 25-26, 1994

London, England

A symposium organized by The Mammal Society and Universities Federation for Animal Welfare. The major theme concerns the various ways in which mammal populations are exploited world-wide, the concept of sustainable use and the resulting welfare considerations for animals involved. Program includes sessions on Mammal Game Ranching, Mammal-oriented Ecotourism; Mammals in Zoos and Circuses; Sport Hunting of Mammals; and Mammal Wildlife Trade and Conservation. For further information contact Victoria Taylor at UFAW, 8 Hamilton Close, South Mimms, Potters Bar, Herts, England EN6 3QD.

The Third Annual Convention of the International Aviculturists Society

Jan. 11-15, 1995

Orlando, FL

Will be held at the Sheraton World Resort. Seminar topics include Conservation Field Work, Aviary Design, Incubation, Nursery Management, Reproduction, Husbandry, Behavior and Training. For further information, contact Luanne Porter, P.O. Box 280283, Memphis, TN 38168. (901) 872-7612 evenings.

The AZA School for Professional Management Development of Zoo & Aquarium Personnel and AZA School for Applied Zoo & Aquarium Biology

February 5-9, 1995

Wheeling, WV

To be held concurrently at Oglebay Park. For further information and application, contact the AZA Office of Membership Services, Oglebay Park, Wheeling, WVA 26003 (304) 242-2160.

The 1995 Sea World Whale Symposium

February 18, 1995

San Diego, CA

Optional college credit available from San Diego State University. For further information, contact: Robin Kendall, Sea World Education Dept., 1720 South Shores Rd., San Diego, CA 92109 (619) 226-3903, FAX (619) 226-3634.

The AZA Conservation Academy, School for Zoo & Aquarium Management, Studbook Keepers' Course and SSP Coordinators' Course

February 18-23, 1995

St. Louis, MO

Courses will be held concurrently. For further information and application, contact: Debra Boyster, AZA Conservation Academy, St. Louis Zoo, Forest Park, St. Louis, MO 63110 (314) 781-0900, ext. 297.

AZA 1995 Regional Conferences

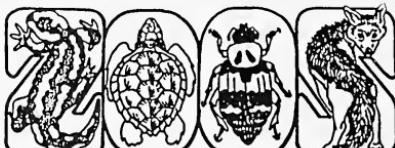
AZA Great Lakes Regional (March 12-14, 1995) - For further information, contact Sandy Allen, Louisville Zoo, P.O. Box 37250, Louisville, KY 40233 (502) 451-0440, ext. 608.

AZA Central Regional (March 26-28, 1995) - For further information, contact Dawn McDonough, Sedgwick County Zoo, 5555 Zoo Blvd., Wichita, KS 67212 (316) 942-2213.

AZA Southern Regional (April 9-11, 1995) - For further information, contact Harriet James, Jackson Zoo, 2918 West Capitol St., Jackson, MS 39209 (601) 352-2585.

AZA Western Regional (April 23-25, 1995) - For further information, contact Rich Hendron, Utah's Hogle Zoo, P.O. Box 58475, Salt Lake City, UT 84108 (801) 582-1632.

AZA Northeast Regional (May 7-9, 1995) - For further information, contact Glenda Nelson, Virginia Zoo, 3500 Granby St., Norfolk, VA 23504 (804) 624-9937.



COMMITTING TO CONSERVATION

THE COLUMBUS ZOO • JULY 13 - 16, 1995

The Columbus Zoo is pleased to announce that in 1995 it will be hosting a conservation conference entitled ZOOS: COMMITTING TO CONSERVATION from 13-16 July 1995. The goal is to bring together field researchers and zoo personnel from all levels in order to promote *in-situ* conservation. Examples of successful projects and how zoos served a vital supportive role will be our main focus.

We hope to inspire and assist zoos that have yet to become involved in *in-situ* and use already existing projects as concrete examples of how a commitment to conservation is in the best interest of zoological institutions. In order to make our conference more affordable to all and increase the potential for networking, our registration fee will cover the cost of many social events and meals.

Tentative topics include: Connecting with a large conservation organization; Connecting with small N.G.O.'s; Sources for seed money; Environmental Education Projects; How to start a conservation project on \$1,000; Keeper-initiated conservation projects; Utilizing volunteer talent as a conservation resource; The role of zoos as a support infrastructure; Sponsorship of biologists in the field; and Assessing the benefits to indigenous people.

If you are interested in more information, would like to attend this conference or would like to present a paper please contact either Beth Armstrong/Ape House or Beth Pohl/Children's Zoo at The Columbus Zoo, Box 400, 9990 Riverside Drive, Powell, OH 43065-0400. Phone (614) 645-3426 or (614) 645-3442.



Tree Kangaroo SSP T-Shirts Now Available

A T-shirt depicting seven species of tree kangaroos is now available. All profits from T-shirt sales will go into the TK-SSP Research Fund. Send in your order NOW as these shirts will be available for a limited time. The colorful design is printed on natural (ecru) colored, 100% pre-shrunk cotton shirt. They are available in sizes Med thru X-lg for \$12.00 each and XX-lg costs \$13.00. Postage is \$1.50 for the first shirt and \$1.00 for each additional shirt. Make checks or money orders (U.S. Funds ONLY) payable to: Judie Steenberg-TK-SSP. Mail to: Judie Steenberg, Tree Kangaroo SSP, Woodland Park Zoological Gardens, 5500 Phinney Ave. North, Seattle, WA 98103. Phone: (206) 684-4011.



Quality exotic animal diets

SPECTRUM

**Nutritionally balanced
Fixed formulation • Economical**

When you need a complete line of high-quality dry and frozen animal diets for your feeding program, call Animal Spectrum.



*Frozen feline diets
Frozen bird of prey diets
Frozen canine diet
Chunk and chopped horsemeat,
hearts, livers, rib, shank,
knuckle bones, and tailbones*



BROOD-RITE HEATERS

*Bulbless heaters—nothing to break
Safe around all animals and
bedding material.
Even heat distribution in 240, 500,
or 750 wattages.*

One call does it all

**TOLL
FREE** 1-800-228-4005

FAX 308-534-7015

*Animal Spectrum, Inc.
P.O. Box 721
North Platte, NE 69101-0721*

Births & Hatchings



Six Flags Great Adventure (Jackson, NJ)...announces the birth of 0.3 white Bengal tiger cubs named Lanka, Divana and Arielle. The dam, Sakuru, gave birth to the triplets on 11 September 1994. The cubs weigh about 1.5 lbs each and display the characteristic white coat with dark grey stripes, blue eyes and pink noses. According to Safari Vice President Butch Dring it is quite amazing that all three cubs were white and female as the odds of this happening are rather small. The cubs will remain secluded with their mother for several months and will join the other white Bengals - Romulus, Babar and Noel - on exhibit next spring. *from News Release of 3 October 1994 - Six Flags Great Adventure, Jackson, NJ.*



Shown l to r are Lanka, Divana and Arielle - white Bengal tiger cubs born on 11 September 1994 at Six Flags Great Adventure in Jackson, NJ. (Photo by Ron Wyatt)

Brookfield Zoo (Brookfield, IL)...reports the following significant B&H for September 1993 - August 1994:

Mammals - 3.1.1 Goeldi's monkey (*Callimico goeldii*) [SSP]; 3.2 Rodriguez flying fox (*Pteropus rodricensis*) [E/SSP/U]; 0.1 Short-eared elephant shrew (*Macroscelides proboscideus*) [U]; 1.1 Lesser slow loris (*Nycticebus pygmaeus*) [U - females rarely born in captivity]; total of 71 Naked mole-rat (*Heterocephalus glaber*) [U]; 1.0 Black rhinoceros (*Diceros bicornis*) [E/SSP]; 0.1 Bottle-nosed dolphin (*Tursiops truncatus*) [zoo's 1st successful birth]; 0.1 Kowari (*Dasyuroides byrnei*) [E/U/1st birth for facility]; 2.1 Reticulated giraffe (*Giraffa camelopardalis reticulata*) [0.1 1st giraffe born in new "Habitat Africa" exhibit; 1.0 is 50th giraffe born at facility]; total of 17 Rock hyrax (*Procavia capensis*) [1st hyrax born in new "Habitat Africa" exhibit]; 2.0 Golden-headed lion tamarin (*Leontopithecus rosalia chrysomelas*) [E/SSP - both parents are founders].

Births & Hatchings, *Continued*

Birds - 1.0 Fairy bluebird (*Irena puella*) [1st time for pair]; 0.1 Inca tern (*Larosterna inca*) [1st time for pair]; 0.0.2 Micronesian kingfisher (*Halcyon cinnamomina*) [E/SSP - 1st time for pair/male was an unrepresented founder].

Reptiles - 0.0.8 Siberian ratsnake (*Elaphe schrenckii*) [U]. submitted by Elizabeth Borst, Senior Primate Keeper, Brookfield Zoo.

Elephant Managers Association Holds 1994 Gathering in Canada

THE
ELEPHANT
MANAGERS
ASSOCIATION

The 15th Annual Elephant Managers Conference was held Sept. 29 - Oct. 2 in Toronto Ontario, Canada. The conference, which attracted over 140 delegates from the U.S., Canada and as far away as Hawaii and Europe, was co-hosted by the Metro Toronto Zoo, the Bowmanville Zoo and African Lion Safari.

Elephant managers, trainers, zoo directors, curators, researchers and elephant enthusiasts came together to discuss their favorite subject at the unique and historic Guild Inn situated on the shore of Lake Ontario. This 100-year-old Inn provided a beautiful setting for all conference activities including lectures, papers, the Hospitality Suite, and a wonderful banquet and dance on the final evening.

Throughout the conference, delegates toured the three host facilities. Participants were offered the chance to view the elephant barns, daily routines, elephants working in harness, medical procedures, elephant shows and rides, along with a demonstration of an elephant restraint device. Also included was a close-up look at the Asian elephant calves born at African Lion Safari - a real highlight for all of us!

On the final evening of the conference it was announced that David Blasko, Elephant Manager at Marine World Africa USA, Vallejo, CA, had been elected as the New EMA President. David will replace outgoing President Chuck Doyle, Burnet Park Zoo, Syracuse, NY, who has done an outstanding job. Chuck will remain active with EMA as a member of its Board of Directors. Other remaining current Board members include: Charlie Grey, African Lion Safari, Cambridge, Ontario, Canada; Jim Black, Zoo Atlanta, Atlanta, GA; and Dinah Wilson, Marine World Africa USA, Vallejo, CA.

Dinah Wilson is acting as liaison between AAZK and the EMA and is happy to help communicate information to all interested parties. You may contact her at: Dinah Wilson, Senior Trainer Elephant Encounter, Marine World Africa USA, 2001 Marine World Parkway, Vallejo, CA 94589-4002. Tel. (707) 644-4000 Ext. 244.

How Porcupines Protect Themselves

Did you know the North American porcupine has more than 30,000 quills? Their quills may be sheathed in an antibiotic grease, according to Uldis Roze, a professor of biology at New York's Queen's College. He theorizes that the grease, which covers the quills on the head, neck, back and tail, may act in much the same way the fatty acid on the surface of human skin does, retarding infections that result from punctures. Porcupines and people are the only mammals known that share this defense mechanism, according to Roze. (*Wildlife Conservation quoted in Nature News from The Nature Book Society, Vol. 8, No. 11*)

FROM THE CONFERENCE COMMITTEE

The 1994 AAZK National Conference in Omaha is finally over. It is simply amazing how quickly it all ends after three years of planning. This year's Conference was deemed a success in its educational program as well as social functions. We are happy to report that the members of the Omaha Chapter are all still with us and are functioning with full use of all body parts (although there were some close calls). The Conference Co-Chairs are still "bonded" and are having some difficulties being separated from one another.

Conference attendance numbered 218 full registrations and 42 day registrations. The paper sessions and workshops encompassed a wide variety of subjects including animal husbandry topics from marine invertebrates to Matschie's tree kangaroos, as well as interesting new ideas and concepts in field conservation.



1994 NATIONAL CONFERENCE
OMAHA, NEBRASKA

There are numerous people who helped make this conference a success, from the delegates who attended to the volunteers who gave their time and efforts to help everything run smoothly. Hopefully everyone who participated left with a little more than they came with (figuratively speaking, of course), maybe a new contact, or perhaps some insight into a husbandry problem.

This has been an experience that we will never forget! Thanks again to everyone who helped make this Conference one to remember, and for everyone's support when we were suffering from "conference fatigue". We hope to see you all in Denver next year!

--The 1994 Conference Committee



THE PERFECT HOLIDAY GIFT FOR ZOO LOVERS

A GUIDE TO AMERICAN ZOOS & AQUARIUMS

by Darcy & Robert Folzenlogen

Visitor Information, Special Exhibits, Seasonal Festivals, Breeding
Achievements & Research Activities for 173 Institutions

Recommended in the AAZK and AZAD journals!

Suggested Retail Price: \$16.95

Now only \$10.00 for AAZK members. No shipping fee in U.S. Limit: 4 books
Willow Press, 6053 S. Platte Canyon Rd., Littleton, CO 80123

From the AAZK Board of Directors.....

AAZK Board Overseers: Who are they and what are their responsibilities?

This is the fourth in a series of overviews of the responsibilities of each member of the AAZK Board of Directors. Each Board Member is assigned committees and/or projects to coordinate or oversee. The Board Overseer maintains communication with the Committee/Project Chair, advises them on the goals the Board would like to see accomplished, and encourages communication to the membership via AKF about the Committee/Project's progress. The Board Overseer also coordinates mid-year and annual reports to the Board for consideration of budget needs, appointees, resignations, and accounting of activities for report to the membership.

This month Alan Baker, Burnet Park Zoo, will review his oversights. If you have any questions or suggestions for any of the committees, please contact either the Chair or appropriate Board member. Our Association is dependent on the collaborative efforts of our committees, chairs and membership.

Research/Grants Committee

Chairperson - Susan M. Barnard, Zoo Atlanta

This Committee solicits and administers research and grant inquiries. Two grants in the amount of \$750.00 each are available through AAZK per year. This Committee also monitors the progress of research projects receiving grants.

Inspection Standards Manual

Chairperson - Rachéł Watkins Rogers, San Diego Zoo

This Committee is preparing a manual that will assist keepers in understanding the inspection standards which apply to zoos. AZA, USDA and APH's Standards will be emphasized.

Membership Services

AAZK Training Materials

Continuing Education Coordinator - Laura Treschel, Minnesota Zoo

Keeper Training Package Coordinator - Christina Simmons - San Diego Zoo

The purpose of this ongoing project is to provide a General Keeper Training Manual. This manual could then be supplemented by each Zoo's specific protocols. The project also provides access to a wide variety of existing training manuals through Laura Treschel.

Animal Data Transfer Forms

Coordinator - Bernie Feldman - Burnet Park Zoo

This project must be considered one of AAZK's most successful. Data sheets are provided free of charge to institutions for use when shipping animals. These sheets provide a link between the staff of both institutions and can greatly effect the successful relocation of animals. Since 1979 over 61,000 forms have been sent out to participating institutions.

Zoo/University List

Coordinator - Mike Illig, Washington Park Zoo

This project supplies a list of universities and schools which offer courses or classes that are relevant to Zoo Keeping. This list can be extremely useful when addressing groups considering a career in Zoo Keeping.

1994 Conference Proceedings Order Form

If you are interested in obtaining a copy of the Proceedings containing the papers presented at the 21st National AAZK Conference held in Omaha, NE, you will need to fill out and return the form below no later than 10 January 1995. All orders **must** be prepaid in U.S. Funds Only. Allow 4-6 weeks following deadline for receipt of publication. Prices are as follows:

AAZK Member	\$20.00
Non-Member	\$25.00

Postage for U.S. orders is included. Canadian and overseas orders should add \$3.00 for Air Mail postage to Canada and Surface postage elsewhere. Overseas orders wishing Air Mail service should add \$10.00. Make checks payable to AAZK, Inc.

Note: Individuals who presented papers at the Conference **and** submitted a manuscript for inclusion in these Proceedings will receive a gratis copy. If a manuscript was **not** submitted, a gratis copy will not be sent, and those individuals will need to order a copy.

Cost of these Proceedings was NOT part of the Conference Registration fee and delegates wishing a copy will need to order one.

The following papers are among those included in these Proceedings: Artificial Incubation and Hand-rearing of African White-backed Vultures at the Cleveland Metroparks Zoo ~ Seasonality and Captive Management of the Maribou Stork ~ Breeding the Crowned Hornbill at the Houston Zoological Gardens ~ Effects of Environmental Enrichment on Social and Aberrant Behaviors in Drill Baboons ~ Exhibiting Alcids ~ The Return of the Swift Fox to Canada ~ Managing Multiple Elephants Using Protected Contact at San Diego's Wild Animal Park ~ Hand-raising a Siamang at the Houston Zoo ~ Managing Herps in an Aquarist's World ~ The Challenge of Hand-rearing a Geoffroy's Tamarin at the Cleveland Metroparks Zoo ~ The Honolulu Zoo's African Savannah ~ Changes in the Nocturnal Behavior of Asian Elephants Following the Reduction of Group Size ~ Kodiak Bear Exhibit Renovation: Enrichment for Bears, Staff and Students ~ Education Using Animals with Special Needs ~ The Black-footed Ferret Breeding Program at the Metro Toronto Zoo ~ Invertebrate Rescue "Stuck Like Glue" ~ Creating a Mixed Exhibit of Ringtail Lemurs and Ruffed Lemurs ~ An Alternative to Processed Meat Diets: Carcass Feeding at Wildlife Safari ~ 1994 Bowling for Rhinos Workshop Update ~ Early Development Chronology of a Matschie's Tree Kangaroo Through Daily Standing Pouch Checks ~ Rehabilitation of a Young Colobus Monkey ~ Health and Reproductive Challenges in the Captive Management of Matschie's Tree Kangaroos ~ Applications of Confined Contact Management of Giraffes ~ Exhibit Design Resource Notebook Workshop and ~ Reproduction and Behavior of Callithrix Primates: Lessons from the Lab.

We also plan to include any other papers, workshop summaries and poster session abstracts that become available to us by our publication deadline.



Feel free to photocopy the form on the adjoining page to place your order.

Proceedings Order Form

(PLEASE TYPE OR PRINT)

I wish to order _____ copy(s) of the 1994 Omaha Conference Proceedings.

of copies x price per copy = \$_____ Additional postage (if applicable) is \$_____

Total payment for this order is \$_____ (make checks/money orders payable to AAZK)

My check is enclosed _____ Please charge to my VISA or MASTERCARD (circle)

Card # _____ - _____ - _____ - _____ Expiration date: _____

Name on card _____

Signature _____

Please mail to me at address given below:

Name _____

Address _____

City _____ State/Province _____

Country _____ Zip/Postal Code _____

Send this Order Form along with check or money order or payment authorization via credit card to: AAZK Conference Proceedings, 635 S.W. Gage Blvd., Topeka, KS 66606-2066.

ORDERS MUST BE RECEIVED BY 10 JANUARY 1995

Proceedings are only available by sending in your order form now. A very limited number of copies beyond pre-paid orders will be printed. Once these are sold, complete sets of Proceedings will no longer be available. After this, copies of individual papers will be available at \$2.00 each. So ORDER NOW!

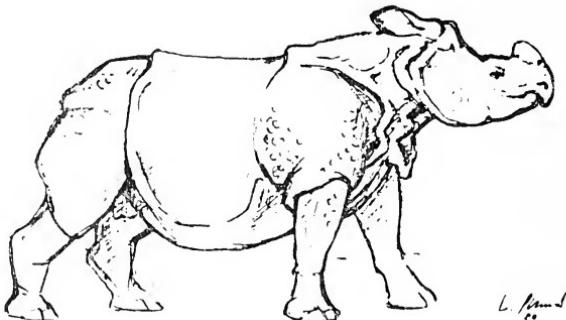
Saving the Javan Rhino

By

Patty Pearthree, Zoo Keeper
Indianapolis Zoo, Indianapolis, IN
National Coordinator "Bowling for Rhinos"

As National Coordinator for the American Association of Zoo Keepers (AAZK, Inc.) "Bowling for Rhinos" fundraiser, I was given the unique opportunity to visit Ujung Kulon National Park, Java, Indonesia. My task was to investigate the funding needs of the park to be sure it was a worthwhile project for the Association. As a keeper by trade, I have dedicated my life to caring for animals while our communities learn they are worth saving in the wild. It is every keeper's dream to be able to see the animals they care for in the wild and my dream was about to come true.

Zoos throughout the country are saving the Javan rhino (*Rhinoceros sondaicus*) by participating in Bowling for Rhinos. Money raised during this fundraiser goes directly to an *in situ* (on location) conservation project which protects the unique and threatened ecosystem of Ujung Kulon, a World Heritage site, and the last refuge of the Javan rhino. In this extremely valuable conservation area, with its wide range of tropical flora, fauna and natural features, first priority is given to the protection and preservation of everything that occurs naturally within the park.



Ujung Kulon is a 300-square-mile National Park on the western tip of Java, Indonesia. This isolated park is home to the last 47 Javan rhinos in the world along with hundreds of other rare plant and animal species. Beyond the risks of natural disaster, genetic problems and disease that all small, isolated populations must face, the threat of poaching still looms large in Ujung Kulon (the Javan tiger was poached to extinction 30 years ago).

The Javan rhino is a very elusive animal and many researchers spend years studying in the field with only a few brief glimpses of the rhino. No zoos in the world have these rare animals. So little is known about the Javan rhino that zoos don't dare take it from its native habitat. Instead, they work to protect the rhino in its own habitat where all its specific needs can be met.

The Javan rhino has become the official symbol of Ujung Kulon National Park. Efforts to protect this flagship species and its habitat will do much more than safeguard a living symbol of this wilderness, they will help preserve one of the most diverse ecosystems in the world. Over 40 mammal species inhabit the park including the Javan rhino, Javan gibbon, leaf monkeys, Javan tree shrew, flying lemur, banteng, wild dog, leopard, binturong, civet, small clawed otter and hairy-nosed otter. More than 250 bird species, many rare reptiles and amphibians including the green sea turtle and saltwater crocodile, and more than 50 rare species of plants inhabit Ujung Kulon.

Saving the Javan Rhino, Continued

I found a very primitive people in a park in its infancy with unlimited potential. In Sumatra, the island directly to the west, the Sumatran rhino population has dwindled from 500 to 150 over the last couple of years. Many fear poachers may soon turn to Java. Ujung Kulon park guards need to be trained to deal with these ruthless poachers. Guard posts need to be built in more strategic locations to stop boats from entering the park. Park guards need to be equipped with communications gear (radios and repeaters), surveillance gear (binoculars, cameras, geographical positioning systems, etc.), and survival gear (backpacks, water filter units, canteens, etc.) to ward off these poachers and gather species statistics. Guards also need the support of their government to prosecute these poachers before a carcass is found. Fifteen thousand U.S. dollars can build a fully equipped guard post (this includes well, building, furniture, solar lighting).

Even more important was our presence in the park and its surrounding community. In addition to Dr. Ron Tilson, Conservation Director from the Minnesota Zoo, who is responsible for the Minnesota Zoo's Adopt-A-Park program which assists Ujung Kulon, was myself representing AAZK, my husband Herbie (unofficial photographer), and two Minnesota Conservation Officers who were establishing relationships and future projects with the guards of this unique ecosystem. To the guards' disbelief, people from half way around the world were willing to help them save this ecosystem. The friendships established through this experience spread throughout the community and will hopefully last for a lifetime. You can bet the guards are given added incentive to care about the wildlife and are thankful to be able to do so.

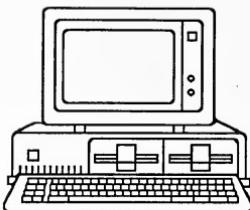
My visit allowed me to see how desperately money is needed at Ujung Kulon and the vast potential our money will bring to insure the survival of the Javan rhino. The relationship we began to build with the Indonesian guards is extremely valuable. In cooperation with Ujung Kulon National Park, The Minnesota Zoo, and the Conservation Officers Association of America, we will work to fund three new guard posts, communications equipment, patrol boats and guard equipment over the next couple of years.

After a grueling flight which took us across the international dateline, we left civilization at the Jakarta airport and were driven to Lebuan, Ujung Kulon National Park headquarters. We met with the head of the park, Chief Agoes, and all the park guards. Detailed park needs were discussed and prioritized. Here we also met "Budi", a park guard, who would be our guide and storyteller for the next week. Then we were off on a hour-long bumpy jeep ride through primitive villages and some of the prettiest countryside I have ever seen. The sites were so breathtaking that we barely noticed the bumps in the road even after we had broken off both handles from the doors in our attempt to stay in place on our seats. We arrived in Tamanjaya, a village and main guard post, at dusk. Everywhere we went the Indonesians were there watching these funny Americans with all their camera equipment. They stood in awe of us while we were busily taking pictures to try to convey our sense of wonderment to the folks back home. A dinner of rice, noodles, fish and SPAM™ would bring a close to each day for the next week. We would visit each of the five guard posts by touring the peninsula by boat and trekking through the rainforest or along the beaches.

At dawn we set off on a 38-foot wooden boat around the northern tip of Ujung Kulon to Peucang Island, the site of another guard post. Here we were greeted by crab-eating macaques which lined the beach and watched our every move. As we snorkeled off the white sand beach amongst the coral reef, we realized ours were the only human footprints for miles (our macaque audience continued to sit on the beach). The monkeys later raided our camp, stealing supplies and interrupting our dinner by leaping onto our plates and scattering the rice to a more acceptable location for them - the ground. As we watched the sunset over the rainforest, the rusa deer came out of the clearing to feed and soon we were amongst a hundred deer and monkeys.

The next morning we trekked through the lowland rainforest along the western tip of Ujung Kulon to Ciramea. This is the location of a future guard post overlooking a beach where the endangered green turtle lays its eggs. Ciramea faces southwest into the Indian Ocean and on clear days one can see Sumatra. Back on the boat once more, we headed back to Handeuleum Island to stay at the guard post overnight.

Continued on page 404



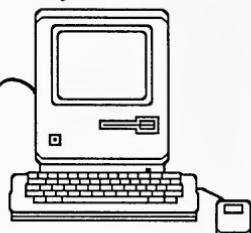
Internet Directory Seeks To Link-Up Zoo World

submitted by Terry Polk, Indianapolis Zoo,
Indianapolis, IS

An Internet address directory communication among individuals aquarium employees. This directory World Wide Web, an Internet hyper-text directory are also available - through 'ftp' personal e-mail upon request. If you would send the following information to the Internet

is being developed to help facilitate electronic communication among individuals who work with animals, including zoo and aquarium employees. This directory is already accessible in searchable format on the navigation system. Text file versions of the directory are also available - through 'ftp' at ftp.wcmc.org.uk in pub/docs, or through personal e-mail upon request. If you would like to be included in the directory, please send the following information to the Internet

Name
Title
Institution
Animals worked with (if applicable)
Other notes (please keep brief)
Internet address



If you would like to receive a current text file copy, please send an e-mail message to the above address with the subject line of 'send zoo list'. If you are familiar with the World Wide Web, the location of this directory is <http://www.wcmc.org.uk/infoserv/zoodir.html>.

If you have a commercial service such as CompuServe, Prodigy, or America Online, you already have an Internet address. Check with your system administrator if you are not sure what the Internet version of your address is. Share ideas and experiences with colleagues around the world!

Assistance Please



Mammal Milk Needed for Lysozyme Study

Milk from any species of mammal is needed for a comparative study of milk lysozyme (EC 3.2.1.17; muramidase) activity. This study is intended to identify and characterize differences in milk which may be important in conservation efforts involving rearing of young animals. Although milk samples for all mammals are encouraged, we would particularly like to receive samples from the following species: Buffalo, Deer, Giraffe, Reindeer, Elk, Goat, Caribou, Cow, Camel, Llama, Sheep, Rabbit, Dog, Cat, Elephant, any Marine Mammal, Chimpanzee, Gorilla, Bear, Lion, Tiger, Horse, Pig, Zebra, Leopard and Rat. Ideally, we would like to receive a sample within 24 hours after a baby is born, one 7 days later, and one month later. However, any milk samples will be appreciated.

Milk samples need only be frozen and shipped on dry ice. We will pay for shipping and handling.

If possible, colostrum - one week and one month samples are appreciated.

For further information, contact:

Joy Truesdale (708) 301-9161 or

Dr. Frank Pascoe, Dept. of Natural Sciences
College of St. Francis - Joliet, IL
Phone: (815) 740-3814
e-mail facnspascoef@vax.colsf.edu



The Exhibit Design Resource Notebook

An Update from the Coordinator

*submitted by Mike Demlong
The Phoenix Zoo, Phoenix, AZ*

The purpose of the EDRN is to document existing animal exhibits at zoos and aquaria in North America and other continents. To do this the EDRN Committee has produced a comprehensive survey form to compile exhibit information on all species of animals: invertebrates, fish, mammals, birds, herps, and amphibians.

When sufficient data on the various taxon groups has been gathered, the results will be printed in a form similar to the Zoo Infant Development Notebook just recently published by AAZK, Inc. The EDRN is intended as a reference for facilitating the creation of or improvement of animal exhibits, never as a substitute for a comprehensive research program.

The success of this project depends totally on your participation. Over the last four months we have received only two responses! If you have received a form please complete it as soon as possible, or if you'd like to participate, call or write me for one or more copies. The survey form is relatively painless to complete, taking about 15-30 minutes of your time.

If your Chapter or institution would like to help subsidize printing and mailing costs for the EDRN project, any size donation would be greatly appreciated. But it's really your participation that we are after. Your efforts have the potential of influencing the quality of life for countless animal species and their human caregivers.

Thank you for your support.

Mike Demlong, Design Department
The Phoenix Zoo
455 North Galvin Parkway
Phoenix, AZ 85008-3431

Office Phone: (602) 273-1341 ext. 7326
FAX: (602) 273-7078



Publication Available

World Directory of Environmental Organizations, Thadeus C. Trzyna and Roberta Childers (eds.); \$45.00. Lists 2,600 environmental organizations worldwide with profiles of their activities and listings of key national governmental and non-governmental organizations. Orders: California Institute of Public Affairs, P.O. Box 189040, Sacramento, CA 95818 USA.

THE GOURMET RODENT™

RATS AND MICE

Bill & Marcia Brant
6115 SW 137th Avenue
Archer, FL 32618
(904) 495-9024
FAX (904) 495-9781
© All Rights Reserved



Book

Reviews

Raptors: Birds of Prey

By John Hendrickson
Chronicle Books, 275 Fifth St.
San Francisco, CA 94103
pgs. 82 Softcover

*Review by Kathy Ruffino
Bird Keeper, National Zoo
Washington, DC*

What a delightful and condensed book Mr. Hendrickson has produced on raptors. In just 82 pages he has produced a vivid portrayal of the hunters of the sky. Along with beautiful photographs this book is broken down into four parts, the first dealing with the physical characteristics such as feet, senses, flight and diet. Part Two deals with the survival techniques raptors have developed through time, including migration. The fourth part of this book deals with Living in Balance. He carefully documents habitat loss, chemical contamination, and accidents that the birds deal with on a daily basis. The conclusion looks to the future that all raptors face if they are to survive ever-increasing human encroachment in their lives.

The photographs that Mr. Hendrickson has taken can be included among some of the finest I have seen. The text is very easy to read and understand. He has a gift of taking complex issues and reducing them to a point where a beginning bird watcher may grasp the information. Whether you are an expert on birds of prey or just starting out, this book will make a fine addition to anyone's collection.



AAZK Announces New Professional/Contributing Members

- Kim Venancio, Buttonwood Prk Zoo (MA)
Mary Ellen Ostrander, Seneca Prk Zoo (NY)
Patrick Thompson, Catoctin Mtn Prk Zoo (MD)
Tammy Bohannon, SciWorks (NC)
Carol Opie, The Zoo (FL)
Alberta Perry, The Zoo (FL)
Carol Porter, Zooland Animal Prk (AL)
Tim Closson, Zooland Animal Prk (AL)
Alex Billingsley, Zooland Animal Prk (FL)
Gregory V. Jones, Sea World of Ohio (OH)
Tom Thompson, Henry Vilas Zoo (WI)
Jason Davis, Dakota Zoo (ND)
Katy Smith, Niabi Zoo (IL)
Colleen Stalf, Niabi Zoo (IL)
Laura Krause, Henry Doorly Zoo (NE)
Shawn Bock, Greenwood Wildlife Rehab (CO)
Dawn Davey, Knotts Berry Farm (CA)
John O'Faolain, Oakland Zoo (CA)
Michael Seeley, Honolulu Zoo (HI)
- Vivian Schepis, Queens Wildlife Cntr. (NY)
Janet Boliek, Baltimore Zoo (MD)
Randy Metzger, Seneca Rocks, NC
Donna Bear Hull, Jacksonville Zoo (FL)
Thomas S. Akin, The Zoo (FL)
Timothy Coats, Monkey Jungle (FL)
Inette Rey, Zooland Animal Prk (AL)
Linda Hempfeng, Zooland Animal Prk (AL)
Shanen Onken, Mun. Blk. Bear Habit. (TN)
Lynn Koscielny, Cleveland Metroparks (OH)
Ross Reinbold, Dakota Zoo (ND)
Chantel Windmon, Lincoln Prk Zoo (IL)
Thomas Stalf, Niabi Zoo (IL)
Darrell Agee, Topeka Zoo (KS)
Jack Hetherington, Henry Doorly Zoo (NE)
Susan Euing, San Diego Zoo (CA)
Susannah Lovett, Chaffee Zool. Gdns. (CA)
Amy Van Der Molen, Sacramento Zoo (CA)
Lesa Martin, Stanely Park Zoo (BC)
- Diane Gosselin, Biodome De Montreal (Quebec)

Renewing Contributing Members

Bruce M. Thomas, Takoma Park, MD
William H. Disher, San Diego Zoo & Wild Animal Park, San Diego, CA



AAZK Book SALE

(November 1994 List)

Sug. Price	Sale Price	
\$15.00	\$12.00	<u>Echo of the Elephant</u> - Cynthia Moss and Martyn Colbeck The story of an elephant family, with full color photographs. 192 pgs. paperback.
\$16.95	\$13.50	<u>The National Audubon Society Almanac of the Environment</u> by Valerie Harms. Here at last is an environmental book for everyone -- a lively, inviting volume with ideas on how we can take action, so we can live in harmony with nature. 304 pgs. paperback.
\$16.95	\$13.50	<u>Animal Architects</u> - Wanda Shipman How animals weave, tunnel, and build their homes. 224 pgs. paperback.
\$49.00	\$40.00	<u>Hawks, Eagles & Falcons of North America</u> - Paul A. Johnsgard This book provides a comprehensive review of all 31 diurnal raptor species that breed in the U.S. and Canada. 404 pgs. hardcover.
\$13.95	\$11.00	<u>The North American Porcupine</u> - Uldis Roze This is an eloquent, anecdotal, yet scientifically rigorous study of one of the odder denizens of North America. 262 pgs. paperback.
\$19.95	\$15.00	<u>The Birds of Winter</u> - Kit and George Harrison This engaging, informative work focuses on the habitats, behavior, food sources, and unique survival techniques of the wild birds that brave winters of the Northern U.S. and Canada. 226 pgs. hardcover.
\$21.95	\$17.50	<u>Nature Crafts with a Microwave</u> - Dawn Cusick See how a microwave can be an indispensable tool in preparing natural materials for crafts -- instantly. 128 pgs. hardcover.
\$29.00	\$24.00	<u>Galapagos: Discovery on Darwin's Islands</u> - David W. Steadman and Steven Zousmer. This beautiful book consists of two parts; a history of man's activities on the islands, from Darwin to date, and 51 color paintings of indigenous species accompanying detailed descriptions. 208 pgs. hardcover.
		<u>Audubon Field Guides</u> 700-900 pages each, flexibound
\$19.00	\$15.00	Birds - Eastern; Birds - Western
\$18.00	\$14.00	Butterflies; Mammals; Insects and Spiders
		<u>Peterson Field Guides</u> - varied # of pages, paperback
\$16.95	\$13.50	Reptile & Amphibians - Eastern and Central Eastern Butterflies; Ecology of Western Forests; Freshwater Fishes

Previous books offered are still available, some with price increases. List the books you want with your name and complete mailing address. Include shipping fee (\$2.00 first book; \$1.00 each additional book) in check or money order payable to: AAZK BOOK SALE, Beardsley Zoo, 1875 Noble Ave., Bridgeport, CT 06610. U.S. FUNDS ONLY, please.





ENRICHMENT OPTIONS

Psychological Stimulation
Behavioral Enrichment
Activity Manipulation
Occupational Husbandry

By Kalya Grams, Arizona-Sonora Desert Museum
and Gretchen Ziegler, Wildlife Safari

This month will be a transitional one for our column, while co-editor Kayla Grams relocates to Tucson, and we prepare for an expansion of this column as the newly organized national Enrichment Committee gears up for action. At the national A.A.Z.K. conference in Omaha last month, the new Enrichment Committee met officially for the first time (actually many times!), and had a very productive and ambitious agenda. A synopsis of the committee's goals will appear in next month's column. Until then, we would like to introduce our readers to the five current committee members:

Dianna Frisch, Columbus Zoo - Committee Chair
Michelle Acuña, Arizona-Sonora Desert Museum
Kayla Grams, Arizona-Sonora Desert Museum
Lee Houts, Sacramento Zoo
Gretchen Ziegler, Wildlife Safari

We are all looking forward to an exciting and enriching year! Stay tuned to future columns for updates and more information about how you can become involved.

We apologize for the brevity of the column this month (in Kayla's moving frenzy she accidentally packed up our files and took them with her to Arizona!). We'll be back up to speed next month. Please continue to send in your ideas, updates, questions, problems, etc. to Administrative Offices in Topeka, c/o Kayla Grams and Gretchen Ziegler - Susan will send them along to us from there. Remember, we rely on **your** participation for this column!

Small Carnivores/Small Mammals: Hang a fresh horse tail (the bushier the better) by a bungee chord from a tree. We do this with our cheetah cubs on an occasional basis with great results - the cubs jump up on hind legs, grabbing, clawing, biting and bouncing the tails for hours. Take care to avoid open hooks which could puncture paw pads, and remove in one to two days when hair starts pulling out.

--Gretchen Ziegler, Carnivore Ranger
Wildlife Safari, Winston, OR



Bear Populations are G-r-r-r-owing

California's Black bear population is healthy -- too healthy, according to state wildlife officials. Wildlife biologists estimate there are 17,000 to 24,000 animals in the wild, which may be more than when settlers first arrived in the state. Black bears haven't had a natural enemy since the California grizzly became extinct in the 1920s. They are now migrating into new ranges, which increases the likelihood of contact with humans. Several incidents involving campers occurred in the San Bernardino Mountains last summer, although officials stress this is still rare. --from *Backpacker*

AZA Presents Awards at Atlanta Conference



The American Zoo and Aquarium Association presented the following awards at its 1994 national conference held in Atlanta, GA in September:

Edward H. Bean Awards

Omaha's Henry Doorly Zoo,
Minnesota Zoological Garden, and
National Zoological Park
Vancouver Public Aquarium

Long-term Propagation of Tigers
Breeding Program for Pandalid Shrimp

Significant Achievement Awards

Bronx Zoo/Wildlife Conservation Park
National Zoological Park Conservation
& Research Center and Woodland Park
Zoological Gardens
San Diego Zoo and San Diego Wild
Animal Park
Wildlife Safari

Breeding Program for Babirusa
Long-term Propagation of Matschie's
Tree Kangaroo
Breeding Program for Hornbills
Long-term Propagation of Cheetah

Education Award

Cleveland Metroparks Zoo

The RainForest Connection

Significant Achievement Awards

Busch Gardens, Sea World of California,
Sea World of Florida, Sea World of
Ohio, Sea World of Texas
Roger Williams Park Zoo

A Pledge and a Promise
Environmental Awards
Zoo Power

Exhibit Awards

Cincinnati Zoo & Botanical Garden

Jungle Trails, The Asian and
African Rainforest Exhibit

Sea World of Florida

Manatees: The Last Generation

Significant Achievement

Brookfield Zoo

Habitat Africa: Phase I

Conservation Award

National Zoological Park

Golden Lion Tamarin
Conservation Program

Significant Achievement Awards

Gladys Porter Zoo
Roger Williams Park Zoo

Mexico/U.S. Kemp's Ridley
Sea Turtle Recovery Program
"Proyecto Titi:" A Multi-disciplinary
Approach to the Conservation of the
Cotton-top Tamarin in Columbia



ZIDP..... Final Notes

I'm pleased and proud to announce the completion of the Zoo Infant Development Project!

I'd like to take a minute to thank all the participants. It was your contributions that kept me inspired over these last four years. Over 102 people assisted in some way with the production of these volumes. (To include Bob Debets who helped after they were produced and didn't get his name in the acknowledgements. Sorry, Bob!)

There are 419 infant records which were contributed by 132 people from 49 institutions. Pam Talbot (a Woodland Park Zoo volunteer) did a whopping 87 of these records herself! Way to go, Pam!

Thirty-five more institutions contributed weight data for the Weight Section which was completed by Tracy Lehman. Tracy is also a Woodland Park Zoo volunteer who has gone off to Vet School in Ohio. Thanks, Tracy!

The Bibliography Section was the work of one individual, Lyn Nadeau-Rudd, M.A. Lyn also volunteers at Woodland Park lending her library expertise to all of us. Wonderful job, Lyn!

Janet Morris of the Woodland Park Zoo Society wrote our database program for the project and trouble-shot over all those years until we had finally finished. Couldn't have done it without you Janet. Thank-you!

And special thanks to Kathleen Hunt who contributed so very much, for so very long that she became co-editor. Kathleen was involved with the project back when we were still writing letters begging you all for information. And she was still working on it that last night when it got shipped off to the printer. To Kathleen I probably owe the fact that we not only completed this project, but came out of it still sane! Can't thank you enough, Kathleen!

I believe in AAZK and also believe this project reflects the best of AAZK! All of you sharing your time and knowledge with each other. BE PROUD, THIS IS YOUR PROJECT!

Sincerely,



Harmony Frazier, ZIDP Coordinator/Co-Editor



Zoo Infant Development

Two-Volume Reference Set

Edited by Harmony Frazier, LVT, Woodland Park Zoo, Seattle, WA and
Kathleen Hunt, B.A., Dept. of Zoology, University of Washington



The American Association of Zoo Keepers, Inc. is pleased to announce the availability of an important reference work. This 1820-page, two volume set is a reference manual of the physical and behavioral development of parent-reared mammal infants in captive collections. These volumes include normal rearing information and weights for many species and can be quickly utilized for quick comparison and reference when deciding whether an infant is being properly cared for or is in need of intervention.

The volumes are divided into four sections: 1) Infant Development Data Sheets (a total of 419 individual records); 2) Weight Data (including many charts and graphs); 3) Bibliography (144 pages of bibliographic references) and 4) Index (species included are indexed by both common and scientific names). The Infant Development Data Sheets and the Weight Section are subdivided by color coded taxonomic ordertabs. The Zoo Infant Development Notebook is packaged in two sturdy 2-inch expanded D-ring binders and include a full-size page lifter for ease of use.

AAZK, Inc. is pleased to be able to offer this important publication to our individual membership categories (Professional, Affiliate, Associate and Contributing) for a SPECIAL INTRODUCTORY PRICE of \$90.00 until 10 January 1995. AFTER that date, the individual member price will be \$125.00. In order to purchase at this special price, all orders must be postmarked by 10 January 1995 - Postmarks dated later than 10 January 1995 will NOT be accepted.

To order, fill out the form below and return with your payment to: AAZK, Inc. ZIDP Notebook, 635 S.W. Gage Blvd., Topeka, KS 66606-2066 U.S.A. Checks or money orders should be made payable to "AAZK, Inc." (U.S. FUNDS ONLY). If using a credit card, make sure to complete all requested information on form. Prices are:

AAZK Members \$90.00 Nonmembers \$150.00

Prices include Domestic Book Rate Postage. Overseas orders must add \$30.00 for parcel post surface shipping. Canadian orders will be mailed within Canada.



ZIDP ORDER FORM

I wish to order copy (ies) of ZIDP Notebook. (Please Circle) AAZK Mem. NonMem.

Name: _____

Address: _____ City: _____

State/Province: _____ ZIP/Postal Code: _____ Country: _____

I wish to pay by: CHECK/MO MASTERCARD VISA

CREDIT CARD # _____ - _____ - _____ - _____ Expiration Date: _____

Name as it appears on credit card (please print) _____

Signature: _____ TOTAL ENCLOSED \$ _____

L.I.N.K.
(Liaison and Information Network for Keepers)

Coordinator for the LINK System: Mark de Denus, Assiniboine Park Zoo, 2355 Corydon Ave., Winnipeg, Manitoba, Canada R3P OR5. (204) 986-6921 [w]; (204) 837-2916 [h]. Assistant LINK Coordinator - Ric Urban, Houston Zoological Gardens, Houston, TX, 1513 MacGregor Way, Houston, TX 77030 (713) 520-3234 [w].

Regional Coordinators

ALABAMA - Fred Alvey, Zoo Atlanta, 800 Cherokee Ave. S.E., Atlanta, GA 30315

ALASKA - Vacancy

ARIZONA - Vacancy

ARKANSAS - Debbie Jackson or Ann Rademacher, Little Rock Zoological Gardens,
#1 Jonesboro Dr., Little Rock, AR 72205

CALIFORNIA (Northern) - Jean Lai, Oakland Zoo, 9777 Golf Links Rd., Oakland, CA 94605 and
Ruby Lara, Sacramento Zoo, 3930 West Land Park Dr., Sacramento, CA 95822-1123

CALIFORNIA (Southern) - Vacancy

COLORADO - Vacancy

CONNECTICUT - Jeanette Nadeau, Roger Williams Park Zoo, Providence, RI 02905

DELEWARE - Theresa Maas, Philadelphia Zoo, 34th & Girard Ave., Philadelphia, PA 19104

FLORIDA - Rick Smith, 5752 Stoneridge, Orlando, FL 32839

GEORGIA - Fred Alvey, Zoo Atlanta, 800 Cherokee Ave. S.E., Atlanta, GA 30315

HAWAII - Vacancy

IDAHO - Holly Liappas, Tautphaus Park Zoo, P.O. Box 50220, Idaho Falls, ID 83405

ILLINOIS - Pat Swieca, 5710 W. Cullom Ave., Chicago, IL 60634

INDIANA - Vacancy

IOWA - Carla Wieser, Omaha's Henry Doorly Zoo, 10th St. & Deer Park Blvd., Omaha, NE 68107

KANSAS - Vacancy

KENTUCKY - Scott Wright, Cleveland Metroparks Zoo, 3900 Brookside Park Dr., Cleveland, OH 44109

LOUISIANA - Rhonda Votino, 3535 Houma Blvd., Apt. 109, Metairie, LA 70006

MAINE - Jeanette Nadeau (see addresses under CT)

MARYLAND - Theresa Maas, Philadelphia Zoo, 34th & Girard Ave., Philadelphia, PA

MASSACHUSETTS - Jeanette Nadeau (see addresses under CT)

MICHIGAN - Tim Sampson, John Ball Zoo, 1300 W. Fulton, Grand Rapids, MI 49504

MINNESOTA - Tim Hill, Minnesota Zoological Gardens, 13000 Zoo Blvd., Apple Valley, MN 55124

MISSISSIPPI - Jeannie Frazier, Jackson Zoological Park, 2918 W. Capitol, Jackson, MS 39209

MISSOURI - Vacancy

MONTANA - Holly Liappas (see address under Idaho)

NEBRASKA - Carla Wieser (see address under Iowa)

NEVADA - Patricia Simonet, Wildlife Safaris, P.O. Box 6735, Incline Village, NV 89450

NEW HAMPSHIRE - Jeanette Nadeau (see addresses under CT)

NEW JERSEY - Frank Leonard, Bronx Zoo, 185th & Southern Blvd., Bronx, NY 10460

NEW MEXICO - Vacancy

EAST NEW YORK - Frank Leonard, Bronx Zoo, 185th & Southern Blvd., Bronx, NY 10460

WEST NEW YORK - Alan Baker, Burnet Park Zoo, 500 Burnet Park Dr., Syracuse, NY 13204

NORTH CAROLINA - Lucy Segerson, North Carolina Zoo, Rt. 4, Box 83, Asheboro, NC 27203

NORTH DAKOTA - Bob Debets, Assiniboine Park Zoo, 2355 Corydon Ave., Winnipeg, Manitoba
Canada R3P 0R5 (204) 986-6921 [w]

OHIO - Scott Wright, Cleveland Metroparks Zoo, 3900 Brookside Park Dr., Cleveland, OH 44109

OKLAHOMA - Debbie Jackson or Ann Rademacher (see addresses under AR)

OREGON - Anna Michel, Washington Park Zoo, 4001 SW Canyon Rd., Portland, OR 97221

PENNSYLVANIA - Theresa Maas, Philadelphia Zoo, 3400 W. Girard, Philadelphia, PA 19104

RHODE ISLAND - Jeanette Nadeau (see addresses under CT)

SOUTH CAROLINA - Lucy Segerson, North Carolina Zoo, Rt. 4, Box 83, Asheboro, NC 27203

SOUTH DAKOTA - Bob Debets (see address under ND)

TENNESSEE - Gail Karr or Cindy Pinger, Memphis Zoo & Aquarium, 2000 Galloway, Memphis, TN 38112

TEXAS - Connie Dieringer, Caldwell Zoo, P.O. Box 4280, Tyler, TX 75712

UTAH - Vacancy

VERMONT - Jeanette Nadeau (see addresses under CT)

VIRGINIA - Theresa Maas, Philadelphia Zoo, 34th & Girard , Philadelphia, PA 19104

WASHINGTON - Vacancy

WEST VIRGINIA - Theresa Maas, Philadelphia Zoo, 34th & Girard , Philadelphia, PA 19104

WISCONSIN -Wayne Hazlett, 3768 S. 89th St., Milwaukee, WI 53228

WYOMING - Holly Liappas (see address under Idaho)

DISTRICT OF COLUMBIA - Theresa Maas (see address under PA)

Province of Ontario - Vacancy

Provinces of Manitoba & Saskatchewan - Bob Debets (see address under ND)

Province of Quebec - Vacancy

Provinces of Alberta & British Columbia - Grant Tkachuk, 10139 157th St., #206, Edmonton, Alberta T5P 2T9

Atlantic Canada - Bernard Gallant, RR # 7, 1081 Ryan Road, Moncton, N.B., E1C 8Z4

Handedness in Captive Red Ruffed Lemurs

By Christine M. Simonsen
University of Mary, Bismarck, ND

Abstract

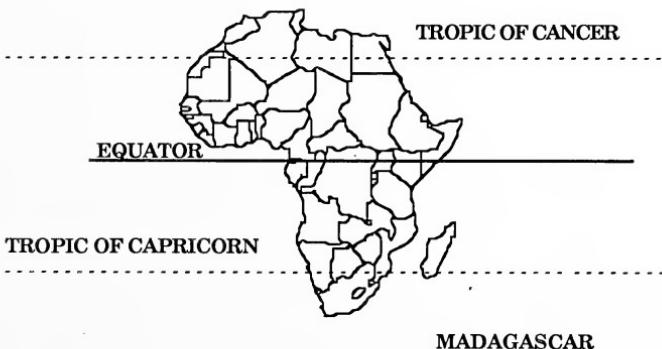
A population of four male Red ruffed lemurs (*Varecia variegata rubra*), all about nine years old, were assessed for lateralized hand use in reaching for food strategically placed inside and outside of their indoor cage. A total of six hours was spent observing this behavior - three hours with food inside the cage (the usual eating condition), and then three hours with food placed outside of the cage. A preference for the use of the left hand occurred in three lemurs and a right hand preference existed in one lemur when food was placed outside of the cage. When food was placed inside the cage, one preferred to use his left hand, one preferred to use his right hand, one demonstrated no preference, and one did not use either hand in any of the three observations with food inside the cage. The results confirm other research that indicates the presence of lateralization in lemurs, especially when forced to use a hand.

Introduction

Several articles (e.g. Forsythe et al., 1988; Ward, 1988; and Ward et al., 1990) on handedness in lemurs sparked an interest in me to undertake the following experiment. I was also curious to see how the lower primates, including lemurs, compared to the higher primates in the frequency and dependency of hand use. I was interested to see if my experiment conducted in captivity agreed with the results of similar research done in the wild.

Lemurs are native to Madagascar, an island almost 1609km long which lies 402.3km off the lower east coast of Africa (see Figure 1). It is thought that these lower primates evolved from ancestral lemurs that may have traveled on rafts of vegetation across the Mozambique Channel long after Madagascar separated from Africa (Tattersall, 1993). Lemurs tend to lead more or less solitary lives in the jungles of Madagascar (Tattersall, 1993). The lemurs' normal diet consists of fruit.

Fig. 1. Lemur habitat



Lower primates are more primitive than the higher primates with respect to the body systems. Lower primates have much smaller brains relative to body size than do higher primates (Tattersall, 1993). They also differ in the development of the association areas

Handedness in Captive Red Ruffed Lemurs, Continued

which govern the transfer of information between various brain centers (Tattersall, 1993). This could have a profound effect on the amount that the lemurs use their hands.

Primates have thumbs that are at least to some extent opposable and have sensitive tactile pads on the fingertips which are backed by flat nails. This has consequences that extend far beyond locomotion and into manipulative abilities. Lemurs tend to pick up items with the entire hand, clutching the item in the palm of the hand. An item held in this way is then more likely to be sniffed rather than visually inspected because the item is partially hidden by the fingers (Tattersall, 1993).

Prosimian lateralized food reaching and holding have predominantly favored use of the left hand (Ward, 1988). MacNeilage et al. (cited in Ward et al., 1990, p. 167) proposed that the left hand visually guided food reaching and the right hand served to support the posture. Predominant use of the left hand in food reaching was reported for four prosimian species, including the Red ruffed lemur (Ward et al., 1990). Ward (1988) felt that bipedal posture enhances the use of the preferred hand. Some species of lemurs have a greater propensity to pick up food with the mouth than with the hand and the propensity is influenced by food type (Ward, 1988).

Biological basis has not been ruled out for a cause of lateral preferences. Forsythe et al. (1988) have found that there exists an inverse relation between frequency of left-hand use and age for the Black lemurs (*Lemur macaco*), and an association between left-hand preference and male gender in Ring-tailed lemurs (*Lemur cata*) was found by Milliken et al. (cited in Ward et al., 1990). It is also suggested that whole-body repositioning serves to facilitate preferred hand use in that the animal moves into a posture from which the preferred hand may be optimally engaged. "Under posturally restrained conditions hand preferences are compromised by an animal's tendency to reach with the more spatially convenient hand." (Forsythe et al., 1988, p. 250).

I will attempt to show that handedness does exist in the Red ruffed lemurs, even in captivity. The null hypothesis is stated as, "There is no difference in the number of times that lemurs use their right and left hands for grasping food."

Materials and Methods

The survey of lemur feeding behavior was conducted from 16 November through 22 November 1993, at the Dakota Zoo in Bismarck, ND. The indoor cage, which measured approximately 3 x 3 x 3 meters, was constructed of metal bars, including the floor and ceiling. There were three triangular platforms located in the two front corners and one in the back left corner of the enclosure. There were also three logs in the cage and a rope that was strung randomly through the unit (see Figures 2 and 3). The cage was located in a garage and the temperature is kept at about 12° C. The only human disturbances include the presence of the zoo keepers, myself, other nearby animals in the garage, and on two occasions, television crews.

Each lemur's feeding was observed at routine mealtimes and the retrieval of each food item was scored as either left unimanual or right unimanual response. Observation and recording continued on a daily basis until three hours had been observed with food in the cage and three total hours with food outside the cage.

Lemurs were individually identified before data collection based on body type and personalities. No special markings were used. The feeding behavior was recorded using a table with each lemur's name followed by empty boxes in which was entered either an R for right hand or an L for left hand use. Every use of the hands for grasping food was recorded for all animals during the entire observation period.

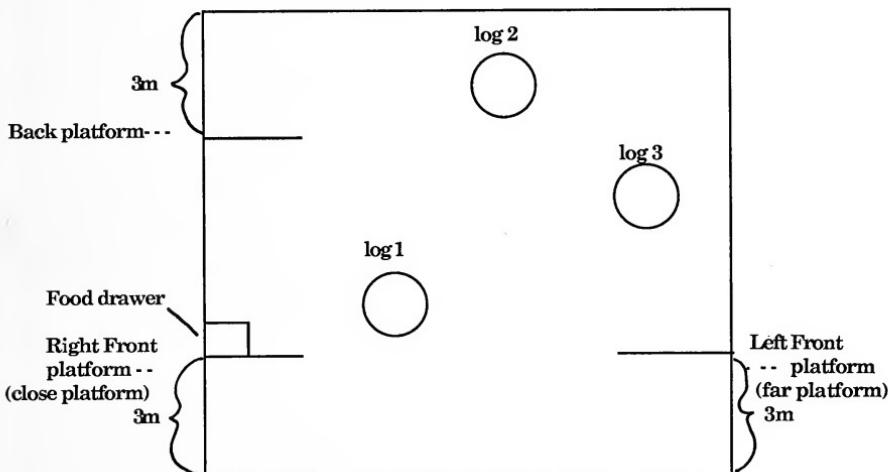
Feeding time was either at 1200 or 1300 hours, depending on convenience for the zoo keepers. The food was not changed for the experiment. The lemurs were fed their usual

Handedness in Captive Red Ruffed Lemurs, Continued

chopped up fruit including: bananas, apples, oranges, strawberries, pineapple, grapes, and occasionally small crackers. The lemurs received food in three circular, plastic dishes about 7cm in height and with a diameter of 20cm. The dishes were placed in the cage on the close, far and back platforms on three occasions. And on the other three occasions the bowls were placed outside the cage in front of the close platform on a barrel, so that the bowl was level with the platform, and two more were placed on the floor in front of the cage, between the close and far platforms. They were placed in different areas inside and outside of the cage to minimize local structural features that might bias reaching preferences. All lemurs were able to feed from the containers from a solid base of support, that is, their weight was supported by the platform or floor. Recording began as soon as the food was delivered and continued for one full hour each visit.

The Chi Square goodness of fit test was used to analyze the results (Burke, 1993).

FIG. 2. Front view of the lemur cage at the Dakota Zoo.



Results

When food was presented inside the cage, one lemur exhibited exclusive use of his left hand, one used his right hand more frequently, and two did not show any preference for either hand (see Table 1). The two lemurs that exhibited a hand preference had calculated chi square values greater than the table value and the other two had calculated chi square values less than the table value (see Table 2).

In contrast, when food was placed outside the cage, three lemurs exhibited a pronounced left hand preference and one exhibited a right hand preference (Table 1). All four lemurs had calculated chi square values greater than the table value (see Table 2).

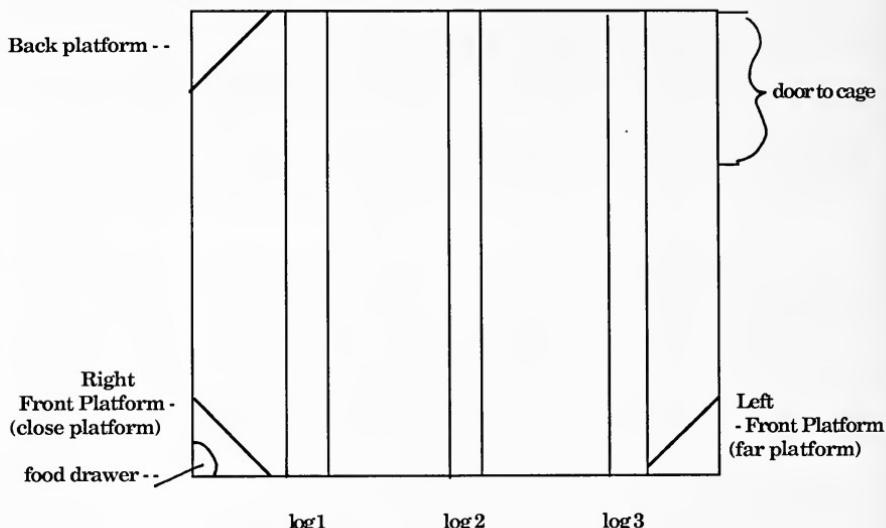
Discussion

These results demonstrate the dramatic influence that conditions of data collection may exert on measures of lemur hand preference. Results with the food outside the cage showed a pronounced left hand preference in three lemurs and a right hand preference in one lemur (see Table 1). For all four lemurs, the table value was less than the calculated value, therefore there was a significant difference in the amount that the right and left hand was used by all lemurs (see Table 2). However, results indicated that when food was placed inside, one lemur preferred to use his left hand and one preferred to use his right hand.

Handedness in Captive Red Ruffed Lemurs, Continued

Because the table values were less than the calculated values, there appears to be a significant difference in the frequency of hand use in both lemurs. The other two lemurs exhibited no hand preference since one did not use either hand on any one of the three occasions when food was placed inside the cage and the other used his right hand slightly more, but there was not enough significant difference because the table value for both lemurs was less than the calculated value (see Table 2).

Fig. 3. Top view of the lemur cage at the Dakota Zoo.



When comparing the results, Pogo showed a preference for his left hand and Bob preferred to use his right hand in both scenarios. But Norman did not use his hand when food was placed inside the cage; however, when food was placed outside the cage he demonstrated left handedness. And when food was placed inside the cage, Albert exhibited no hand preference, but when food was outside the cage he obviously preferred to use his left hand (see Table 1). From these results it may be concluded that lemurs will seldom, if ever, use their hands to grasp food unless it is not within reach of their jaws and they must use their hands to receive nutrition. It is suggested that hand use during foraging is determined primarily by proximity of the object (Forsythe et al., 1988).

As stated earlier, Forsythe et al. (1988) found that there existed an inverse relation between frequency of left hand use and age for Black lemurs, and an association between left hand use and male gender in Ring-tailed lemurs, was found by Milliken et al. (cited in Ward et al., 1990). Lemurs between the ages of one and three years showed a marked decrease in the use of the mouth for picking up food and an increase in frequency of the use of the preferred hand. One and two-year-old juveniles used their mouths more for retrieving food than adult lemurs did. "The percentage of mouth use was similar for males and females and did not differ as a function of left or right hand preference" (Ward et al., 1990, p. 169). Adult lemurs exhibited strong handedness with age group averages between 85fi and 90fi for lemurs over two years old.

Their research also showed that most one-year-old lemurs were ambipreferent. From two to six years of age, lemurs show a predominance of left hand preference. "Populations of age seven and older had equal proportions of left and right preferent animals" (Ward et al., 1990, p. 169). The majority of male lemurs of all ages had a left hand preference, but the proportion of right handed males in the population tended to increase somewhat with age. Juvenile females (one to two years) were almost equally likely to be left or right hand

Handedness in Captive Red Ruffed Lemurs, Continued

preferent or to have no clear hand preference, however, the young adult females (three to six years) showed a left hand preference comparable with males of the same age group. When compared to the young adult female group, the proportion of left handed females remained virtually unchanged in the older adult female group. But this older group did exhibit a sharp decrease in the proportion of ambipreferent females with an increase in the number of right handed females (Ward et al. 1990).

Table 1. Total number of times the hands were used with food inside and outside the cage.

<u>LEMUR</u>	<u>INSIDE</u>		<u>OUTSIDE</u>	
	Left Hand	Right Hand	Left Hand	Right Hand
POGO	4	0	70	2
NORMAN	0	0	72	1
ALBERT	7	4	76	29
BOB	1	7	2	93

Table 2. Calculated Chi square values of hand usage inside and outside the cage.

<u>LEMUR</u>	<u>INSIDE</u>	<u>OUTSIDE</u>
POGO	4*	64.22*
NORMAN	0	69.06*
ALBERT	0.818	21.04*
BOB	4.50*	27.16*

* = significant difference between table value of 3.841 and the calculated value.

For all the Chi square tests the df (degrees of freedom) = 1 and the confidence value was 95%.

Younger lemurs have a tendency to retrieve food with the mouth that is in some ways similar to the "mouthing" of human infants (Ward et al., 1990, p. 172). In all mammals oral neuromuscular development precedes the development of other action systems, and the chemical and tactile senses associated with the oral cavity are also functional at birth. Taking food with the mouth to use of the hands occurs over a period of years. "The prolonged duration of this change may be related to the period required for full maturation of the neural control of the hands" (Ward et al., 1990, p. 172).

From this information it can be concluded that hands of the lemur do not have a specialized structure but serve the general purpose of locomotion in trees and on land, grooming and food retrieval. The development of these skills proceeds over time and is accompanied by a corresponding process of neuromuscular maturation (Ward et al., 1990).

From the preceding information, I would conclude that the lemurs I observed may not have yet developed the motor skills that the older lemurs in the study seemed to exhibit.

Handedness in Captive Red Ruffed Lemurs, Continued

Left hand preference of lemurs demonstrates a superior neuromuscular development of the right hemisphere of the brain. Geschwind and Galaburda presented evidence that the left hemisphere of the brain develops over a longer time period than the right hemisphere (cited in Ward et al., 1990, p. 173). Perhaps this is true for the lemurs as well, leading to the higher frequency of left hand use because the right hemisphere develops faster. And perhaps since Bob displayed a preference for his right hand, he may have developed his preference at a later date than the other three lemurs.

Testosterone was also suggested by Ward et al. (1990) as one of the internal factors that may affect the growth and development of the left hemisphere, therefore accounting for the high incidence of left-handedness in human males, which happens to be 90% of all males (Ward et al., 1990). Lemurs may have early development of the right hemisphere due to the effect of testosterone on the left hemisphere development. This early advancement of the right hemisphere continues throughout the adult life of the lemur and results in a larger percentage of right handed lemurs in older populations (Ward et al. 1990). From this information I would conclude that perhaps Bob is the oldest of the group, because he exhibits a preference for his right hand while the other three lemurs prefer to use their left hand because they are younger and the left hemisphere has not had enough time to develop, therefore not having precise manipulative motor skills in the right hand.

It has also been proven that handedness in humans is a genetic component. Perhaps this holds true for the lemurs as well and they too do not have much control over which hand they will use, since it has already been inbred in them.

Throughout the late spring, summer and early fall the Red ruffed lemurs' dwelling is in an outside cage at the zoo. Moving the lemurs indoors may have had a traumatic effect on them which could have profound effects on the outcome of this study. If I were to carry out this same experiment again, I would record the hand preference of the lemurs in their outdoor enclosure to compare the results with the indoor results. I would also observe the hand preferences in all seasons of the year to see if climatic changes may effect the outcomes. Ward et al. (1990) suggested that large species samples may identify species differences among some lemurs in lateralization, therefore to continue with this research I would suggest that a larger population of the *Varecia variegata rubra* be used in addition to other species of lemurs because there are many adaptive specializations among primates.

The lemurs' cage was located among other animal cages and this as well may have affected the behavior of the lemurs. Perhaps the lemurs felt intimidated by the other animals to use their hands or perhaps since the lemurs had a cage of parrots on either side of their cage and they never observed the parrots using their limbs for food retrieval, the lemurs therefore did not use their hands for much food retrieval as well. Therefore, I would carry out the indoor experiment in solitary confinement, away from animals of different genus, to see if this could also have any affect on the lemur handedness.

According to Alcock (1993) all behaviors involve costs and benefits. Perhaps handedness does not have enough benefits to equal or surpass the costs involved, therefore resulting in the low frequency of hand use when food was placed inside the cage. But when food was placed outside the cage, this may have inverted the cost-benefits ratio, leading to a hand preference.

Acknowledgments

I gratefully acknowledge the assistance of the Dakota Zoo caretakers including: Ross Reinhold for arranging time in his schedule to feed the lemurs at my convenience; Jason Davis for sharing information on the individual personalities of the lemurs; and Greg Schmid for helping me differentiate the lemurs and for providing play toys. And I would like to extend a special thanks to Dr. Med Burke for her advice and extra assistance.

Handedness in Captive Red Ruffed Lemurs, Continued

Literature Cited

- Alcock, J., 1993. *Animal Behavior*. 5th edition. Sinauer Association, Inc.
Sunderland, MA., USA.
- Burke, M. G. 1993 Basic Statistics, handout for Biology 423, University of Mary,
Bismarck, ND, USA.
- Forsythe, C., G.W. Milliken, D.K. Stafford, and J.P. Ward. 1988. Posturally related
variations in the hand preference of the ruffed lemurs. *Journal of Comparative
Psychology* 102: 248-250.
- Tattersall, I. 1993. Madagascar's lemurs. *Scientific American* 268: 110-117.
- Ward, J. 1988. Left-hand reaching preference in prosimians. *Behavioral and
Brain Sciences* 11: 732-733.
- Ward, J.P., G.W. Milliken, D.L. Dodson, D.K. Stafford, and M. Wallace. 1990.
Handedness as a function of sex and age in a large population of lemur.
Journal of Comparative Psychology 104: 167-173.



The frozen Zoo

If the Cincinnati Zoo and Botanical Garden's Betsy Dresser had been around during the Jurassic Period, dinosaurs might be alive today. Dresser and her team at the zoo's Center for Reproduction of Endangered Wildlife (CREW) are working furiously to save wild species from the fate of *Tyrannosaurus rex* and its cousins. In the process, they're making cryopreservation history with their frozen zoo and garden, which holds genetic materials of over 500 endangered species of plants and animals - eggs, sperm, embryos, tissue, and seeds - in a sort of suspended animation.

But what's preservation with propagation? Enter ART (assisted reproduction technology), with interspecies embryo transfer among the most exciting avenues. In this technique, rare wild species are stimulated to produce numerous embryos that are then placed in surrogate mothers of a closely related, but more common animal. The first successful interspecies embryo transfer involving endangered mammals occurred in 1981 at the Bronx Zoo/Wildlife Conservation Park with the birth of a Gaur calf to a Holstein cow.

In the botanical world, CREW is focusing on recalcitrants, plants whose seeds have no mechanism to withstand the drying and freezing of cryopreservation. In 1987, CREW began experimenting with the cacao plant and devised a method of cryopreservation that has become a model for tropical recalcitrants. Already successful in using tissue culture to propagate a trillium species whose numbers had dwindled to a mere 1500 plants in the wild, CREW is now working with the Desert Botanical Garden in Phoenix to propagate a rare desert orchid.

CREW's work is promising, but can ART really preserve the long-term viability of species without genetic problems? "Assisted reproduction techniques have been used in the beef and dairy industries for years. Millions of calves have been born," says Dresser. "Provided we use the reproductive tools responsibly, I believe we're on to a very valuable difference in the way we handle wildlife preservation." *Wildlife Conservation via Nature News*, Vol. 10, No. 9, *The Nature Book Society*.



Legislative Outlook

*Compiled by
Phyllis Nilson-Wojcik
Legislative Advisor*

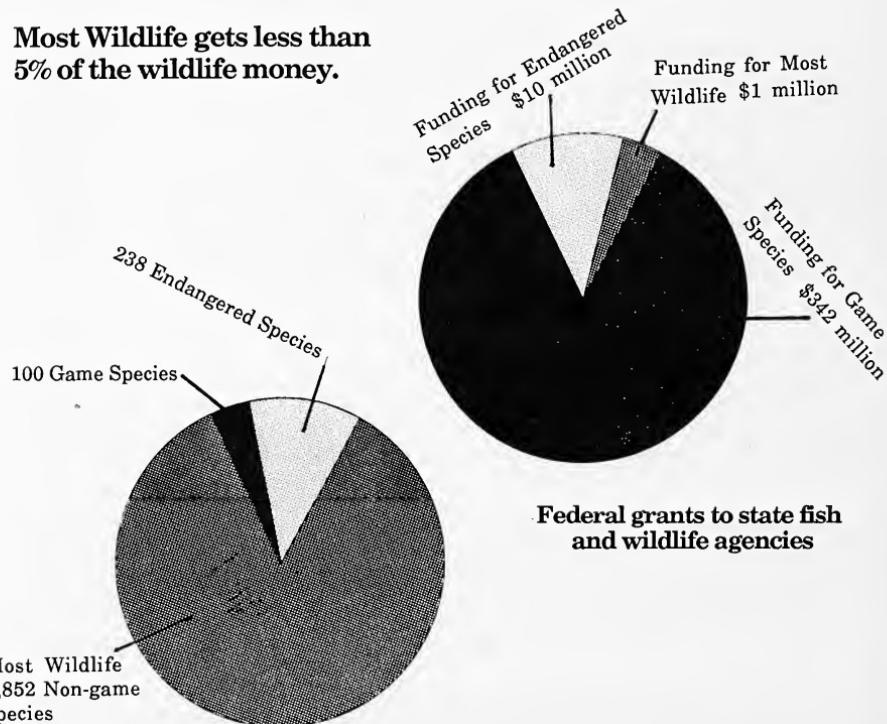


Source for Nongame Funds Proposed

The Fish and Wildlife Conservation Act (nongame Act) was signed into law in 1980 to strengthen nongame fish and wildlife protection and management. Funds, however, are lacking to implement effective projects.

Endangered and game animals receive more than 95% of wildlife money. This is generated through funds from the Endangered Species Act and sportsmen and women who have long paid license fees and special taxes on equipment. These funds have been used to successfully restore and maintain game populations.

Most Wildlife gets less than 5% of the wildlife money.

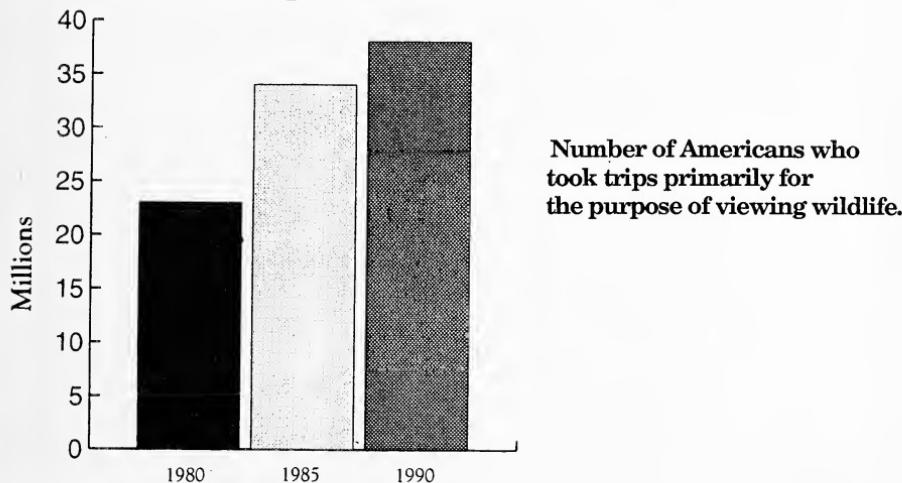


Legislative Outlook, Continued

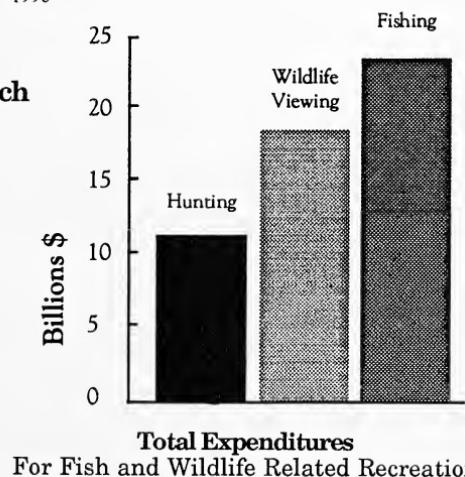
In 1938, the Pittman-Robertson Federal Aid to Wildlife Restoration Act was created to benefit game animals. The Federal Aid in Sport Fish Restoration Acts, created later, do the same for many species of game fish. Other species, which constitute about 90% of the nation's wildlife, do not receive such assistance. For this reason, the International Association of Fish and Wildlife agencies have been working to create an adequate funding base for fish and wildlife programs, with an emphasis on nongame, called the Fish and Wildlife Diversity Funding Initiative.

There are over 1,800 "common" wildlife species with no reliably funded conservation programs. There are 160 million Americans who regularly enjoy the outdoors while camping, hiking, birdwatching, mountain biking, and photographing nature. Various industries earn \$18 billion a year on outdoor recreation equipment manufacturing and sales, and tourism service. This includes binoculars, wildlife identification books, special clothing, and in addition, food, transportation, and lodging. A healthy wildlife community is necessary to support these industries.

Over 37 million Americans take trips primarily to watch, photograph or feed wildlife.



The outdoor industry has much to gain by supporting wildlife diversity.



Legislative Outlook, *Continued*

The International Association of Fish and Wildlife Agencies supports a modest surcharge be added to outdoor recreation equipment. The IAFWA believes \$350 million could be raised annually. These funds, according to IAFWA, would emphasize wildlife conservation, but would also enhance viewing blinds, nature trails, and educational materials. For additional information, contact:

International Association of Fish and Wildlife Agencies
Hall of States, 444 North Capitol St., NW, Suite 544
Washington, DC 20001

Helpful Tips When Writing Elected Officials

- 1) Original letters are best, use your own words and state how you are personally affected by certain legislation or topic.
- 2) Hand-written letters are OK, but remember to write on only one topic.
- 3) When writing on a particular bill, state the bill name, bill number, and whether you would like him/her to oppose or support the bill.
- 4) Request a response on their opinion.
- 5) If they agree with your opinion, a thank-you letter helps to reinforce their support.
- 6) If they differ from your opinion, additional letters may help. Enough letters from voters have been known to change officials' votes.

Letters to all U.S. Senators can be mailed to:

The Honorable
U.S. Senate
Washington, DC 20510

Letters to all U.S. Representatives can be mailed to:

The Honorable
U.S. House of Representatives
Washington, DC 20515

Or call (202) 224-3121

To write the President:

President Bill Clinton
White House
1600 Pennsylvania Ave
Washington, DC 20500



Homemade Insect Sprays

There are a number of safe insect-control sprays you can make in your home. For instance, you can soak cigarette or cigar butts or chewing tobacco in water until it turns the color of strong tea. When sprayed on plants, it kills aphids and leaf-chewing pests. It also eliminates any soil-dwelling insects. Don't use this concoction on edible plants, though. And don't let anyone accidentally drink the stuff.

A mixture of dishwashing detergent and vegetable oil can be used as an all-purpose spray on any plant. A brew of liquid detergent, hot pepper and mineral oil will control a number of pests in the adult as well as larval stages. It's also good for keeping rabbits, deer, woodchuck and chipmunks away from your flowers.

Mealybugs can be controlled with a mix of rubbing alcohol and hot peppers. Buttermilk or sour milk will take care of scale, as will pure rubbing alcohol. *Hobby Greenhouse via Nature News*, Vol. 11, No. 1, *The Nature Book Society*.



Institutions wishing to advertise employment opportunities are asked to send pertinent data by the 15th of each month to: Opportunity Knocks/AKE, 635 S.W. Gage Blvd., Topeka, KS 66606-2066. Please include closing dates for positions available. There is no charge for this service and phone-in listings of positions which become available close to deadline are accepted. Our phone is 1-800-242-4519 (U.S.); 1-800-468-1966 (Canada). Our FAX is 913-273-1980.

ANIMAL CARE SUPERVISOR...requires a Bachelor's degree in biology, zoology, or related field and two years' zoo experience in animal care, including one year supervisory experience. A working supervisor position directly responsible for the daily operation of the animal department. Salary \$19,500 - \$23,000. Send letter and resumé by **25 November 1994** to: Kyle McNeil, Human Resources, Dreher Park Zoo, 1301 Summit Blvd., West Palm Beach, FL 33405-2098.

EDUCATION COORDINATOR...prefer Bachelor's degree in education with emphasis in Natural Sciences or related field. Develops, implements and promotes extensive school/public education programs. Assists in training of teachers and volunteers to conduct classes. Must possess excellent written and oral communication skills, and have the ability to work with a variety of people. Reports to Curator of Education. Salary and benefit package. Submit resumé **no later than 30 November 1994** to: Nancy L. Foley, Director of Human Resources, The Toledo Zoological Society, P.O. Box 4010, Toledo, OH 43609-0010.

ZOOKEEPER...the Lee Richardson Zoo is seeking resumés from highly motivated, team-oriented individuals. The position requires a high school diploma and one year of elephant experience. A basic understanding of operant conditioning and its application to a protected contact management system is desirable. Responsibilities include the care and maintenance of two female African elephants in a protected contact situation, as well as care of other species. Salary \$6.69-\$8.83/hr. depending on education and experience, plus excellent benefits. Send resumé **by 1 December 1994** to: Jeff Bullock, Lee Richardson Zoo, P.O. Box 499, Garden City, KS 67846.

ANIMAL KEEPERS...five (5) positions available dealing with: (1) Venomous Reptiles and Amphibians, (2) Elephants, (1) Primates, (1) Carnivores. DUTIES: Maintain a healthy environment for animals at the Little Rock Zoo. REQUIREMENTS: Completion of high school; at least one (1) year experience working with and around exotic animals in a controlled environment; OR equivalent experience and training. SALARY RANGE: \$15,432 - \$22,109. Must submit an original City of Little Rock application, and a training and experience questionnaire **by 5:00 p.m., Wednesday, 30 November 1994**. To apply contact: City of Little Rock, Personnel Department, 500 West Markham, Room 130W, Little Rock, AR 72201-1428 Tel: (501) 371-4590. AA/EOE.

ZOO DIRECTOR...midwest zoo of seven (7) acres and a diverse collection of 240 animals is in need of a Director. Our Director is involved in all aspects of the zoo. Duties include: administration, daily operations, program development, marketing/fundraising, public speaking, etc. Applicants must be professional with the ability to motivate and lead staff. People-oriented and eager to work effectively with people is a must. Individuals with experience working with a board of directors, business/community leaders, and the public are desired. Send resumé **by 30 November 1994** to: The Grand Island Zoological Society, c/o Cindy Jelinek, President, 416 No. Sheridan, Grand Island, NE 68801.

SENIOR WILD ANIMAL KEEPER...requires minimum 3-5 years experience caring for diverse zoo collection including mammals, birds, and/or reptiles. Experience with freshwater fish, aquatic systems maintenance, and marine mammal training preferred. Salary \$27,635 to start, benefits include three (3) weeks vacation, health and retirement plans. Position located at the Prospect Park Wildlife Center in Brooklyn, NY. Send resumé to: John Fairbairn, Human Resources, Wildlife Conservation Society, 2300 Southern Blvd., Bronx, NY 10460. Call (718) 220-5119 with inquiries.

Opportunity Knocks, Continued

ASSISTANT CURATOR OF MARINE MAMMALS.....plans/implements acquisition/disposition, husbandry, training, exhibit maintenance and show presentation protocols for a collection of nine (9) Harbor, Harp and Grey seals. Requires a Bachelor of Science degree, four (4) years' progressively responsible experience and a minimum of one (1) year supervisory experience; demonstrated knowledge and experience in aquarium operations, marine mammal husbandry and behavioral training and knowledge of vertebrate physiology, marine ecosystems, taxonomy and water chemistry. Must have valid driver's license and advanced SCUBA certification. Salary range mid to high \$20,000s. To apply send cover letter with resumé to: Human Resources, The New Jersey State Aquarium at Camden, One Riverside Drive, Camden, NJ 08103-1060.

ANIMAL RECORDS ASSISTANT...maintains records, prepares reports, coordinated animal shipping arrangements and oversees reference library. Requires a degree in biology, zoology or related science, a minimum of one (1) year of administrative experience and knowledge of animal taxonomy, scientific nomenclature, animal husbandry, behavioral data collection and animal record systems is required. Accurate typing skills and experience with data processing and ARKS preferred. Salary mid \$20,000s. To apply send cover letter with resumé to: Human Resources, The Philadelphia Zoo, 3400 Girard Avenue, Philadelphia, PA 19104.



Saving the Javan Rhino, Continued from page 383

The next morning we ventured up the Cigenter River in dugout canoes through the tropical rainforest. It is this type of river and its wallows that the Javan rhino visit, so we kept our eyes peeled for this elusive animal. We disembarked the canoe to hike into the forest. By the end of the hike, my shirt was soaked with sweat, but my exhaustion was soon forgotten. We discovered day-old rhino tracks of 28 and 14 centimeters in diameter. This was an adult and a young rhino which could only mean one thing - the rhinos are still finding one another and breeding in the park. Mud caked on the trees from the rhino wallowing up the riverbank indicated the animal's height, and partially eaten vegetation with the leaves chewed off with a straight edge was evidence of the rhino's dinner. We considered ourselves lucky that day.

The rest of the trek took us through jungle and coastline visiting current and potential guard posts. At each post, we had the opportunity to speak with the guards about their problems and needs for the area. Our daily encounters included dense rainforest overflowing with animal songs, beautiful white coral-sand and volcanic beach fronts, and wonderfully friendly people.

Our journey brought us half way around the world to see the home of one of the most endangered animals on earth. We met key people, both in the field and in the offices, who would help us save these animals and their splendid habitat. We left with an overall excitement in the fact that thousands of people, separated by thousands of miles, can work together in preserving a biological and ecological time capsule for future generations to enjoy.

(Editor's Note: Under the current arrangement, the first \$100,000 raised by Bowling for Rhinos is designated for the Ngare Sergoi Rhino Sanctuary in Kenya; any funds raised over this amount are earmarked for the Ujung Kulon Javan Rhino project. One hundred percent of funds raised from Bowling for Rhinos goes for rhino protection and conservation. No BFR funds were used for Patty's trip to Indonesia.)



AAZK Membership Application

Name _____ check here if renewal []

Address _____

City _____ State/Province _____ Zip _____

U.S. Members

- \$30.00 Professional/U.S.
Full-time Keepers
- \$25.00 Affiliate/U.S.
Other staff & volunteers
- \$25.00 Associate/U.S.
*Those not connected with
an animal facility*
- \$50.00 or up Contributing/U.S.
Individuals
- \$50.00 or up Institutional/U.S.
*Organizations / Institutions
(requires Board approval)*

Canadian Members

- \$35.00 Professional/Canada
Full-time Keepers
- \$30.00 Affiliate/Canada
Other staff & volunteers
- \$30.00 Associate/Canada
*Those not connected with
an animal facility*
- \$55.00 or up Contributing/Canada
Individuals
- \$55.00 or up Institutional/Canada
*Organizations / Institutions
(requires Board approval)*

International Members

- \$40.00 International
*All members outside U.S. &
Canada regardless of category*

Library Only

- \$20.00 Library
*Available only to
established libraries*

Zoo Affiliation (if any) _____

Zoo Address _____

Title _____

Work Area _____

My check is enclosed (AAZK, Inc.)

Please charge to my credit card

MASTERCARD _____ VISA _____

Card # _____ - _____ - _____ - _____

Name on card _____ Expiration Date _____

Signature _____

Mail this application to : AAZK Administrative Offices, Topeka Zoo, 635 S.W. Gage Blvd., Topeka, KS 66606-2066 U.S.A. Make checks/money orders payable to AAZK, Inc. Must be in U.S. FUNDS ONLY.

Membership includes a subscription to *Animal Keepers' Forum*. The membership card is good for free admission to many zoos and aquariums in the U.S. and Canada.



AMERICAN ASSOCIATION
of Zoo Keepers, Inc.

635 S.W. Gage Blvd.
Topeka, KS 66606-2066

Address Correction Requested

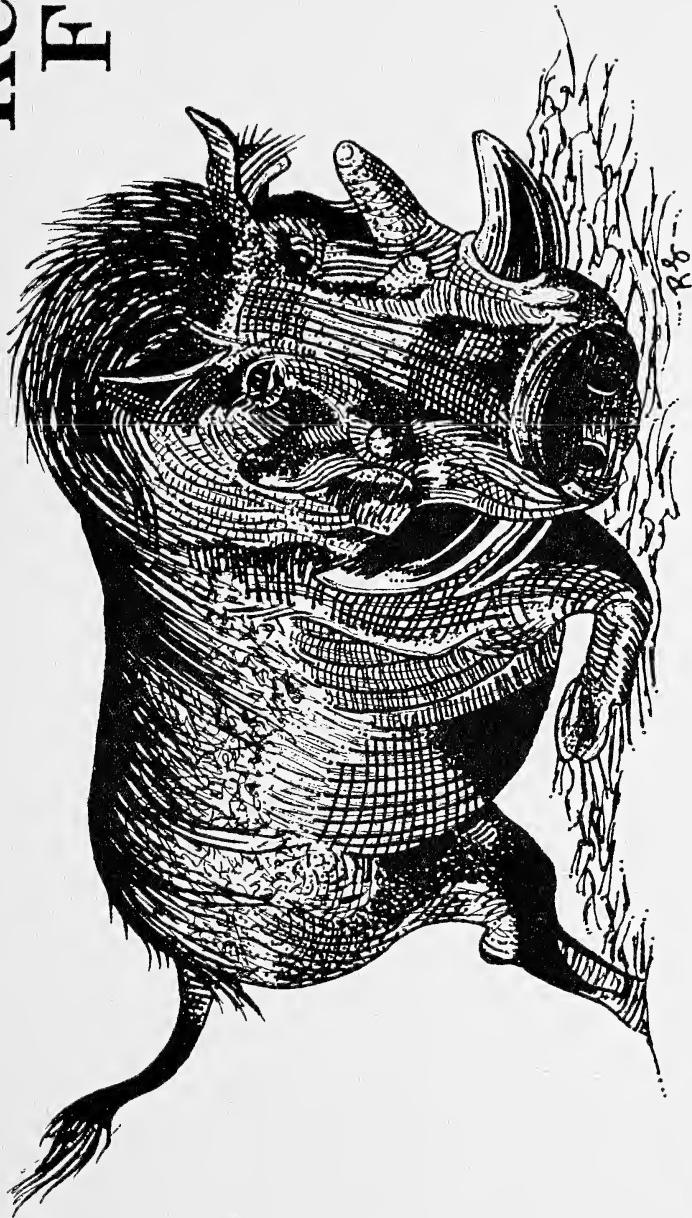
National Zoological Park
NZP Library
Washington, DC 20008

3/95

NON-PROFIT ORGANIZATION
U.S. POSTAGE
PAID
PERMIT #646
TOPEKA, KS 66603

Animal Keepers' Forum

QL
76
A598
N28



Dedicated to Professional Animal Care

December 1994

ANIMAL KEEPERS' FORUM, 635 S.W. Gage Blvd., Topeka, KS 66606-2066
Phone: 1-800-242-4519 (U.S.) 1-800-468-1966 (Canada) FAX 913-273-1980

Managing Editor: Susan Chan

Associate Editors/Enrichment Options Coordinators:

Kayla Grams, Arizona-Sonora Desert Museum & Gretchen Ziegler, Wildlife Safari

Book Review Coordinator: Melba T. Brown, National Zoo

Legislative Outlook Column Coordinator: Phyl Nilson Wojcik, John Ball Zoo

December 1994

Volume Twenty-one

Number Twelve

Animal Keepers' Forum (ISSN 0164-9531) is a monthly journal of the American Association of Zoo Keepers, Inc. Ten dollars of each membership fee goes toward the annual publication costs of *Animal Keepers' Forum*. Third Class postage paid at Topeka, KS. Postmaster: Please send address changes to:

American Association of Zoo Keepers, Inc.

Administrative Offices, 635 S.W. Gage Blvd., Topeka, KS 66606-2066

Barbara Manspeaker, Administrative Secretary

Executive Director: Ed Hansen, AAZK, Inc.

BOARD OF DIRECTORS

Janet McCoy, Metro Washington Park Zoo, Portland, OR 97221-2799

President

Rachél Rogers, San Diego Zoo, San Diego, CA 92112

Vice President

Mark de Denus, Assiniboine Park Zoo, Winnipeg, Manitoba, Canada

Alan Baker, Burnet Park Zoo, Syracuse, NY 13204-2504

Ric Urban, Houston Zoological Garden, Houston, TX 77030

Marilyn Cole, Metro Toronto Zoo, Toronto, Ontario, Canada

Diane Callaway, Omaha's Henry Doorly Zoo, Omaha, NE 68107-2200

COMMITTEES

Nominations & Elections

Chair - Vacancy

Conservation, Preservation & Restoration

Chair - Brett Sellers, Metro Washington Park Zoo

Annual Conferences

Coordinator - Ed Hansen, AAZK, Inc.

Awards

Chair - Anna Michel, Metro Washington Park Zoo

Exhibit Design Resource Notebook

Michael Demlong, The Phoenix Zoo

AAZK Inspection Standards Manual

Rachél Watkins Rogers, San Diego Zoo

By-laws

Chair - Vacancy

Ethics

Chair - Rachél Watkins Rogers, San Diego Zoo

Research/Grants

Chair - Susan Barnard, Zoo Atlanta

Publications Funding

David Luce, Chaffee Zoological of Fresno

AAZK Chapter Logo Products

Vacancy

Enrichment Committee

Dianna Frisch, Columbus Zoo

MEMBERSHIP SERVICES

L.I.N.K. Coordinator

Mark de Denus, Assiniboine Park Zoo

Zoo University List

Mike Illig, Metro Washington Park Zoo

Keeper Accommodations List

Todd Cleveland, Denver Zoo

International Outreach

Lesa Scheifele, Norwich, CT - Coordinator Foreign AAZK Members/Sister Organizations

Lois Johannes, L. A. Zoo - Coordinator Foreign Keeper Sponsorship Program

Kathy Kelly, National Zoo - Project M.A.R.C. (Making A Realistic Contribution)

AAZK Training Materials

Laura Treschel, Continuing Education Coordinator, Minnesota Zoological Gardens

Christina Simmons, Keeper Training Package Coordinator, San Diego Zoo

Animal Data Transfer Form

Bernie Feldman, Burnet Park Zoo

Staff Exchange

Dale Frerking, Kansas City Zoo

AAZK Historian

Heidi Fowle, Discovery Island

PRESIDENTIAL ADVISORS

AZA Liaison

Ed Hansen, IPP, AAZK, Inc.

Bowling for Rhinos

Patty Pearthree, Indianapolis Zoo

Elephant Managers Association

Dinah Wilson, Marine World Africa USA

CAZPA Liaison

Tom Mantil, Metro Toronto Zoo

AAZK PUBLICATIONS - CONTINUING DATA COLLECTION

Zoo Infant Development Project -

Teri Maas/Maggie Liguori, Philadelphia Zoo (Birds/Nonpasserines); Kim Livingstone, L.A. Zoo (Passerines)

Jeanne Boccongelli, Newark Museum Mini-Zoo (Reptiles); Linelle Lone, Denver Zoo (Amphibians)

Diet Notebook, Mammals, Vol. II - Susan Bunn Spencer, Grand Rapids, MI

Table of Contents

Scoops & Scuttlebut.....	406
AAZK Announces New Professional/Contributing Members.....	407
Message from the President.....	408
Coming Events.....	409 - 410
Toxic Shock - Are chemicals putting wildlife on the fast track to extinction?.....	410
X-Ray Notecards Order Form.....	412
DOWN UNDER.....	413 - 414
An Adventure Awaits You in Colorado.....	415
Conference '94 Proceedings Information/Order Form.....	416 - 417
Lusaka Agreement Sets Up World's First International Wildlife Task Force.....	418 - 419
Information Please (Giraffe substrates; lion introductions).....	419
AAZK Book Sale.....	420
Zoo Infant Development Order Form.....	421
Scented Vinegars for Behavioral Enrichment of Ocelots.....	422 - 423
Assistance Request (Lysozyme Study; Continuing Keeper Education Ideas).....	423
Quarantine: Why Is It Necessary?.....	424 - 426
Committing to Conservation Conference.....	426
Enrichment Options (Enrichment Committee Goals).....	427 - 428
Book Reviews (The Wilderness Condition and Noah's Ark).....	429 - 430
Ivory Seized at Brussels Airport.....	430
Chapter News.....	431 - 433
L.I.N.K. List of Regional Coordinators.....	434
Opportunity Knocks.....	435 - 436
Board of Directors Nomination Forms.....	BLUE INSERT

Information for Contributors

Animal Keepers's Forum publishes original papers and news items of interest to the animal keeping profession. Non-members are welcome to submit articles for consideration.

Articles should be typed or hand-printed and double-spaced. All illustrations, graphs, charts and tables should be clearly marked, in final form, and should fit in a page size **no greater than 15cm x 25½cm (6" x 10")**. Literature used should be cited in the text (Brown, 1986) and alphabetically in final bibliography. Avoid footnotes. Include scientific name of species (as per ISIS) the first time it is used. Thereafter use common name. Use metric system for weights and measurements (standard equivalents may be noted in parenthesis). Use the continental dating system (day-month-year). Times should be listed as per the 24-hour clock (0800, 1630 hrs. etc.). Black and white photos **only** are accepted. Color slides should be converted to black and white prints (minimum size 3" x 5") before submission. Clearly marked captions should accompany photos. Please list photo credit.

Articles sent to *Animal Keepers' Forum* will be reviewed by the editorial staff for publication. Articles of a research or technical nature will be submitted to one or more of the zoo professionals who serve as referees for *AKF*. No commitment is made to the author, but an effort will be made to publish articles as soon as possible. Lengthy articles may be separated into monthly installments at the discretion of the editor. The editor reserves the right to edit material without consultation unless approval is requested in writing by the author. Materials submitted will not be returned unless accompanied by a stamped, self-addressed envelope. Telephone or FAX contributions of late-breaking news or last-minute insertions are accepted as space allows. However, long articles must be sent by U.S. mail. Phone is (913) 272-5821 Ext. 31. FAX (913) 273-1980.

DEADLINE FOR EACH EDITION IS THE 15TH OF THE PRECEDING MONTH

Articles printed do not necessarily reflect the opinions of the
Animal Keepers' Forum editorial staff or
the American Association of Zoo Keepers, Inc.
Publication does not indicate endorsement by the Association.

Items in this publication may be reprinted providing credit to this publication is given and a copy of the reprinted material is forwarded to the editor. Reprints of material appearing in this journal may be ordered from the editor. Back issues are available for \$2.00 each.

This month's cover art features the Warthog (*Phacochoerus aethiopicus*) drawn by Roby Elsner, a Mammal keeper at the Dallas Zoo, Dallas, TX. Warthogs are widespread in the open plains of Africa where they live in small groups that consist of a mature male, several females, or sows and their young. The males, however, often live alone. Females produce litters of from 2-7 young that stay with the mother for one year. Warthogs stand 24-33 inches high and weigh from 110 to 330 pounds when mature. They have barrel-shaped bodies covered with blackish skin which is bare except for a hairy mane on the back. The small eyes are placed at the back of the head, just in front of the ears, which enables the animal to see well even while it is grazing. They are active by day and feed on grasses, roots, worms and insects. Thanks, Roby!

Scoops and Scuttlebutt

Recharter Packets Soon On Their Way

All AAZK Chapters are reminded that the time for rechartering as a Chapter of this Association will soon be here. Recharter packets will be mailed to all Chapters in early January. Packets are to be completed and returned with the appropriate rechartering fee by **1 March 1995**. Chapters are encouraged to adhere to this deadline as the Board of Directors has instituted a late fee of \$50.00 for packets received after this date. This fee is in addition to the rechartering fee. If you have any questions about completing your annual financial statement, please contact Barbara at the AAZK Administrative Offices.

Conference '94 Proceedings - ORDER NOW!

If you are interested in receiving a copy of the proceedings of the 1994 AAZK National Conference held in Omaha, NE, you are encouraged to complete the order form found in this issue of *AKF*. Proceedings will be printed in late January and sent to those ordering by early February 1995. These Proceedings will include the papers presented at Omaha as well as summaries of the workshops and poster sessions. Cost is \$20.00 for AAZK members and \$25.00 for nonmembers.

Conference '94 T-Shirts Still Available

AMERICAN ASSOCIATION OF ZOOKEEPERS

The official T-shirt of the 1994 AAZK National Conference is still available in limited quantities from the Conference Committee. They are ash color, short-sleeve with the Conference '94 logo on the front. They are only available in X-large and cost \$12.00 each which includes shipping. Make checks payable to Omaha AAZK Chapter/Conference Committee and send to: Diane Callaway, Henry Doorly Zoo, 3701 S. 10th St., Omaha, NE 68107.



"A KEEPER'S PERSPECTIVE"

Nutrition Conference Scheduled for 1995 - Keeper Paper Solicited

The Nutrition Advisory Group (NAG) of the American Zoo and Aquarium Association is holding its first conference on Zoo and Wildlife Nutrition in Toronto. The conference topic is "The Role of Nutrition in Wildlife Conservation". The conference is being co-hosted by the Metro Toronto Zoo and the University of Guelph, Dept. of Animal and Poultry Science, and will be held May 1-2, 1995. In order to encourage participation by keepers and students, four papers submitted by such authors will be selected for presentation. The

Scoops and Scuttlebutt, Continued

keeper or student that is the primary author of these successful submissions will have their registration fee (\$150 Cdn.) waived. If submitting, clearly indicate that you are submitting in this category. Abstracts should be 250 words and must be received no later than

1 January 1995. Send abstracts or request further conference information from: Eduardo Valdes, Metro Toronto Zoo, P.O. Box 280, West Hill, Ontario Canada M1E 4R5. A Commissary Management Workshop will be held on 30 April and will cover such topics as centralized/decentralized operations, food safety, purchasing, animal feeds, recordkeeping, etc. For further info on this workshop contact: Barb Toddes, Philadelphia Zoo at (215) 243-1100, Ext. 253:



AAZK Announces New Professional/Contributing Members

Trish Clement, Ross Park Zoo (NY)

Mary Richards, Riverbanks Zoo (SC)

Matt Schoenleben, Jacksonville Zoo (FL)

Leanette Brown, no zoo listed Detroit, (MI)

John W. Dee, Como Zoo (MN)

Craig Collier, Santa's Forest Zoo (MS)

Stephanie Gossett, Ellen Trout Zoo (TX)

Barbara Dreis, The Living Desert (CA)

Robert Houghton, Plumpton Prk. Zool. Gdns. (MD)

Suzanne Daley, North Carolina Zool. Prk. (NC)

Melissa Petroski, Tallahassee Mus. of Hist. (FL)

Jennifer Cedarleaf, Northwoods Wildlife (WI)

Dawn Hunter, Niabi Zoo (IL)

Sherree Nixon, Audubon Zoo (LA)

Erik Holmbeck, San Antonio Zoo (TX)

Jim Rorman, Washington Prk Zoo (OR)

Carol Simkins, Woodland Prk Zoo (WA)

James Godsmark, Kawartha Feline Breeding Compound (ONT)

Renewing Contributing Members

Mark & Kate Hofling, Bronx Zoo (NYZS), Bronx, NY

Jack Brown, Director, Santa Fe Community College Teaching Zoo, Gainesville, FL

Steve H. Taylor, Director, Cleveland Metroparks Zoo, Cleveland, OH

John G. Shedd Aquarium Library, Chicago, IL

Gordon Henley, Director, Ellen Trout Zoo, Lufkin, TX

Tree Kangaroo SSP T-Shirts Now Available

A T-shirt depicting seven species of tree kangaroos is now available. All profits from T-shirt sales will go into the TK-SSP Research Fund. Send in your order NOW as these shirts will be available for a limited time. The colorful design is printed on natural (ecru) colored, 100% pre-shrunk cotton shirt. They are available in sizes Med thru X-lg for \$12.00 each and XX-lg costs \$13.00. Postage is \$1.50 for the first shirt and \$1.00 for each additional shirt. Make checks or money orders (U.S. Funds ONLY) payable to: Judie Steenberg-TK-SSP. Mail to: Judie Steenberg, Tree Kangaroo SSP, Woodland Park Zoological Gardens, 5500 Phinney Ave. North, Seattle, WA 98103. Phone: (206) 684-4011.

Message From the President.....

Due to the addition of two new Board members at the Omaha Conference, the Board of Directors oversight assignments are now as follows:

President, Janet McCoy	Presidential Advisors (AZA, CAZPA, Bowling for Rhinos, Elephant Managers Association)
Vice Pres, RachéL Rogers	Conservation, Preservation & Restoration, Ethics, National Elections
Mark de Denus	Bylaws, LINK (Liaison and Information Network for Keepers), AAZK Publications
Alan Baker	Research Grants, Training Materials, Inspection Standards
Ric Urban	Enrichment, International Outreach (Int'l Technical Assistance, Int'l Affairs, Foreign Sponsorship, and Project M.A.R.C. (Making a Realistic Contribution)
Marilyn Cole	Awards, Animal Data Transfer Form, Keeper Accommodations List
Diane Callaway	Historian, Staff Exchange, Zoo/University List
Ex. Director, Ed Hansen	Administrative Offices, <u>Animal Keepers' Forum</u> , Publications Funding, Conferences

A committee synopsis of annual reports given at the Omaha Conference was sent to all Chapters in November. If you are not a Chapter member and would like to receive this summary, as well as other materials sent to Chapters, please contact me and I will place you on this mailing list.

Please be aware that nomination forms for the election of new Board members appear as a center insert in this month's AKF. I would encourage you to nominate interested and qualified individuals to help steer the future course of the Association. Nominations forms are due by **31 January 1995** and elections will be held in the spring. Chapters are also encouraged to solicit their members to run for Board positions.

As a reminder to all AAZK Chapters, according to our Bylaws December is the month to elect your 1995 Chapter Officers. Also a reminder that your Chapter Renewal Packets will be mailed to you in early January and are due no later than **1 March 1995**. Please keep in mind that there is a \$50.00 late fee for rechartering after this date.

On behalf of the Board and the staff of AAZK, I want to wish you and yours happy and safe holidays and a prosperous New Year!



Janet McCoy, AAZK President
Washington Park Zoo, Portland, OR



Coming Events

The Third Annual Convention of the International Aviculturists Society

Jan. 11-15, 1995

Orlando, FL

Will be held at the Sheraton World Resort. Seminar topics include Conservation Field Work, Aviary Design, Incubation, Nursery Management, Reproduction, Husbandry, Behavior and Training. For further information, contact Luanne Porter, P.O. Box 280283, Memphis, TN 38168. (901) 872-7612 evenings.

The AZA School for Professional Management Development of Zoo & Aquarium Personnel and AZA School for Applied Zoo & Aquarium Biology

February 5-9, 1995

Wheeling, WV

To be held concurrently at Oglebay Park. For further information and application, contact the AZA Office of Membership Services, Oglebay Park, Wheeling, WVA 26003 (304) 242-2160.

The 1995 Sea World Whale Symposium

February 18, 1995

San Diego, CA

Optional college credit available from San Diego State University. For further information, contact: Robin Kendall, Sea World Education Dept., 1720 South Shores Rd., San Diego, CA 92109 (619) 226-3903, FAX (619) 226-3634.

The AZA Conservation Academy, School for Zoo & Aquarium Management, Studbook Keepers' Course and SSP Coordinators' Course

February 18-23, 1995

St. Louis, MO

Courses will be held concurrently. For further information and application, contact: Debra Boyster, AZA Conservation Academy, St. Louis Zoo, Forest Park, St. Louis, MO 63110 (314) 781-0900, ext. 297.

13th Annual Symposium of the National Wildlife Rehabilitators Association

March 1-5, 1995

Minneapolis, MN

This educational conference is designed to advance the profession of wildlife rehabilitation and to foster cooperation among various disciplines concerned with wildlife survival and awareness of our environment. For more information contact: NWRA, 14 North 7 Avenue, St. Cloud, MN 56303; phone (612) 259-4086.

Symposium on the Nutrition and Medicine of New World Primates

March 12, 1995

Louisville, KY

Hosted by the New World Primate Taxon Group of AZA. The conference will be held the Sunday before the AZA Mid-Western Regional Conference. The theme will be the medicine and nutrition of New World primates during different life cycles (i.e., pregnancy, lactation, neonatal and geriatric). Speakers will discuss the basic physiological changes as well as management of medical and nutritional diseases that may occur during each life cycle. For further information contact: Dr. Peregrine Wolff, Minnesota Zoological Garden, 13000 Zoo Blvd., Apple Valley, MN 55124 USA; Phone (612) 431-9361, FAX (612) 431-9367.

Coming Events, *Continued*

Joint Conference of the Australasian Regional Association of Zoological Parks and Aquariums (ARAZPA) and the Australasian Society of Zoo Keeping (ASZK)

April 3-7, 1995

Perth, WA

The theme is "Partnerships for Conservation". Will include paper sessions, keynote speakers, and *in-situ* visits to conservation areas. For further information contact: Eveline Read, Conference Coordinator, Perth Zoo, P.O. Box 489, South Perth WA 6151.

AZA 1995 Regional Conferences

AZA Great Lakes Regional (March 12-14, 1995) - For further information, contact Sandy Allen, Louisville Zoo, P.O. Box 37250, Louisville, KY 40233 (502) 451-0440, ext. 608.

AZA Central Regional (March 26-28, 1995) - For further information, contact Dawn McDonough, Sedgwick County Zoo, 5555 Zoo Blvd., Wichita, KS 67212 (316) 942-2213.

AZA Southern Regional (April 9-11, 1995) - For further information, contact Harriet James, Jackson Zoo, 2918 West Capitol St., Jackson, MS 39209 (601) 352-2585.

AZA Western Regional (April 23-25, 1995) - For further information, contact Rich Hendron, Utah's Hogle Zoo, P.O. Box 58475, Salt Lake City, UT 84108 (801) 582-1632.

AZA Northeast Regional (May 7-9, 1995) - For further information, contact Glenda Nelson, Virginia Zoo, 3500 Granby St., Norfolk, VA 23504 (804) 624-9937.



Toxic Shock ... Are chemicals putting wildlife on the fast track to extinction?

By Abby Spring and Yael Bradbury

According to a study released by WWF-US, humans and wildlife have been overexposed to chemicals in the environment. The result: "Populations of many long-lived species are declining, some to the verge of extinction."

Dr. Michael Fry of the University of California, one of the 23 North American scientists who contributed to the study, says animals such as eagles and porpoises are endangered: their young are not hatching, dying early, are unable to reproduce, or have gross birth deformities. And though chemicals that make their way into water and food have long been known to cause these effects, until recently scientists have not understood exactly how. More and more research shows that these chemicals - pesticides and industrial chemicals such as PCBs which act as "synthetic hormones" - damage embryos either by blocking the effects of normal hormones or by creating abnormal reactions as they mimic these effects. "The embryo is the life stage most sensitive to chemical hazards," says Dr. Theo Colborn, senior scientist at WWF-US.

And what is bad for animals is bad for humans: "Wildlife are reliable sentinels of chemical effects on humans," warns Fry. WWF-US maintains that the US - which produced 197.5 billion kilograms of synthetic, organic chemicals in 1992 - lacks adequate toxicity tests. The study recommends that chemicals be screened for hormone effects before they get into the environment. "It is not enough," says Fry, "to continue screening only for direct toxic effects such as causing cancers after the chemicals have already been released."

Reprinted from July/August 1994 "WWF News" (NewsDesk section): WWF News - copyright ©1993 by WWF-World Wide Fund For Nature (formerly World Wildlife Fund).



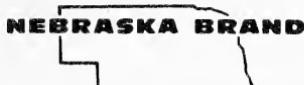


Quality exotic animal diets

SPECTRUM

**Nutritionally balanced
Fixed formulation • Economical**

When you need a complete line of high-quality dry and frozen animal diets for your feeding program, call Animal Spectrum.



Frozen feline diets

Frozen bird of prey diets

Frozen canine diet

*Chunk and chopped horsemeat,
hearts, livers, rib, shank,
knuckle bones, and tailbones*



BROOD-RITE HEATERS

*Bulbless heaters—nothing to break
Safe around all animals and
bedding material.
Even heat distribution in 240, 500,
or 750 wattages.*

One call does it all

**TOLL
FREE**

1-800-228-4005

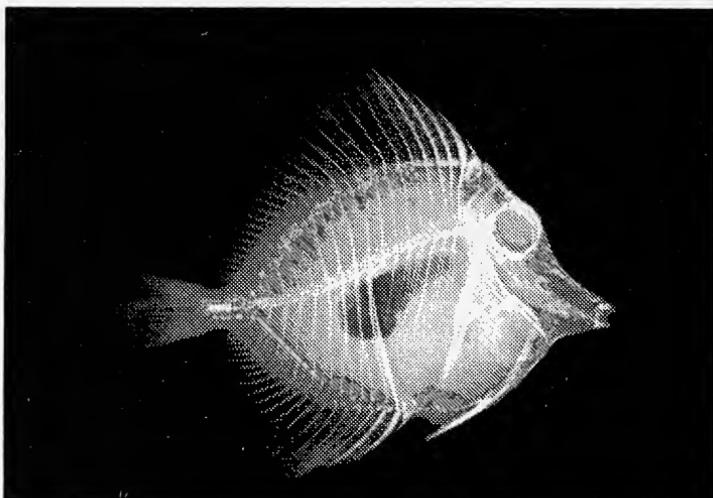
FAX 308-534-7015

*Animal Spectrum, Inc.
P.O. Box 721
North Platte, NE 69101-0721*

X-RAY NOTECARDS

Inventory Close-Out - Prices Reduced !

The Rocky Mountain AAZK Chapter, Denver, CO, is proud to offer specially produced animal X-ray notecards available for sale through our Chapter. These high quality black and white cards are printed on recycled paper and feature four designs of reproduced radiographs right from our hospital slides. Animals featured on the cards include: Yellow Tang (*Zebrasoma flavescens*) shown here, the Vampire Bat (*Desmodus rotundus*), the Tiger Salamander(*Ambystoma tigrinum*), and Chilean Flamingo (*Phoenicopterus chilensis*). The cards are sold in sets of 12 (three animal design) and promise to be a unique Chapter creation. Each box will now be offered at \$8.00 each plus \$1.00 shipping and handling. This is a fundraiser to help support the 1995 AAZK National Conference to be held in Denver Sept. 24-28, 1995. Please use order form below, making checks or money orders payable to: Rocky Mtn. AAZK Conference Committee and send to the Chapter at the Denver Zoo, 2900 E. 23rd Ave., Denver, CO 80205.



Yellow Tang, *Zebrasoma flavescens*

YES! I have enclosed \$ _____ for _____ boxes of notecards

Please mail to me at:

Name: _____

Address: _____

City, State, Zip: _____

DOWN UNDER

Coordinated by
Judie Steenberg, Keeper
Woodland Park Zoo
Seattle, WA

DOWN UNDER.....is an information column about Australasian animals. While there are a number of Keepers who work in Australasian Units, or routines, oft times a Keeper will have a few species

of animals from the Australasian zoogeographical region on their string or routine. It is hoped this section will contain information on birds, mammals and reptiles.

This column is intended to:

- share experiences and information to improve the care and management of Australasian animals.
- seek information and advice on problems that occur.
- serve as a forum through which to make comment, to ask questions, to critique, or to verify information.

Please send your materials (a question, a paragraph or an article) directly to Animal Keepers' Forum, Topeka Zoological Park, 635 S.W. Gage Blvd., Topeka, KS 66606-2066, Attn: Susan Chan.

Southern Hairy-nosed Wombat Born at Metro Toronto Zoo

The Metro Toronto Zoo is proud to announce the first successful birth of a Southern hairy-nosed wombat (*Lasiorhinus latifrons*) in Canada. The parents are "Tessie II", a 13-year-old, captive-born female on loan from Brookfield Zoo, Chicago, and "Hamlet", a 12-year-old, captive-born male from Taronga Zoo, Sydney, Australia.

The wombats had been kept in a nocturnal house with reversed lighting since 1984. In the fall of 1993, they were placed together in a diurnal exhibit with free access to the holding and tunnels. This was done to encourage reproduction. When they were most active (at night), they were alone and undisturbed. They were seen sporadically during the day.

In May 1994 they returned to their separate exhibits in the Nocturnal Wing. On 26 September, 1994, as Tessie II was lying on her back, the joey was observed in the pouch for the first time (estimated age: 180 days).

--submitted by Australasian Pavilion Animal Care Staff, Metro Toronto Zoo

Tree Kangaroo Stamps Available from Papua New Guinea Issue

Several commemorative stamps featuring various species of Tree Kangaroos have been issued by Papua New Guinea and are available to those interested in collecting these unusual stamps. The Philakorea 1994 features the Grizzled tree kangaroo (*Dendrolagus indistus*) and Doria's tree kangaroo (*Dendrolagus dorianus*). Prices for this stamp issue include: Souvenir Sheet (\$2.30 US); and Souvenir Sheet First Day Cover (\$2.90 US).

DOWN UNDER, *Continued*

The Huon Tree Kangaroo (*Dendrolagus matschiei*) Issue costs: First Day Cover (\$3.00US); Stamp Set (\$2.60US); and Stamp Pack (\$3.30). For either Issues, if purchaser is using a personal check, buyers should include an additional \$1.30 US bank fee. MC/ VISA and Am. Ex. accepted. Place U.S. orders through: PNG Philatelic Bureau, USA Mailing Point, P.O. Box 321, Western Hempstead, NY 11552 USA.

Australian Tropical Rain Forest Trees - An Interactive Identification System

For the first time in the history of botanical study, the complete arborescent flora of a major continental vegetation regime is being made available to both professional and amateur botanists as a computerized key with complete documentation. This product offers a unique experience in identifying plants - it provides the keys to enable the identification of rain forest trees using features of leaves, fruits, flowers, bark, seedlings or geographic distribution in any order or combination. Includes 1056 tree species. The package contains the following items:

- A computer-based interactive key for Macintosh or IBM PC (3.5 and 5.25" disks)
- Volume 1 - descriptions and illustrations of the features available for identification, Glossary, and list of species giving scientific names, common names and trade names.
- Volume 2 - brief descriptions of each species including additional features to aid identification, and notes on distribution and ecology.
- Leaf Atlas of Australian Tropical Rain Forest Trees (D. Christopher and B. Hyland) - another botanical innovation which allows users to compare leaf specimens with near life-sized illustrations covering all species included in the key. The *Leaf Atlas* is available separately for \$80.00.

Publication Data:

ISBN 0-643-05403-0

1160 pages in 3 volumes

Software Macintosh and MS-DOS 3.5 & 5.25"

Approximate shipping weight: 4kg (9 lb)

Illustrations: Black and White Cover: Paperback

Price \$195.00 (\$US)

Additional Postage:

\$20.00 within Australia

\$25.00 outside Australia

May be ordered from: CSIRO Information Services, P.O. Box 89 East Melbourne, Victoria 3002, Australia. Phone: +(613) 418-7217 FAX: +(613) 419-0459. Credit card payment available.

Macropod Information Request

The following questions have been asked recently and your input is requested. This information will be included in the revised Tree Kangaroo Husbandry Notebook, which is currently in preparation. Thank you.

- 1) Have you observed coprophagy in your tree kangaroos, or any other macropod species?
- 2) Please send information regarding any experiences of suturing pouches to facilitate retention of young in macropods that have had young prematurely exit the pouch.

Send information directly to: Judie Steenberg, Action Plan Facilitator, TK-SSP, Woodland Park Zoological Gardens, 5500 Phinney Avenue North, Seattle, WA 98103.



An Adventure Awaits You in Colorado



Friday, September 22 and Saturday, September 23, 1995

Join us on the Pre-conference trip to Colorado Springs. Visit the Cheyenne Mtn. Zoo, take a tram up Pikes Peak, witness the Lazer Canyon show, spelunk in the Cave of the Winds, and be astounded by the beauty of the Garden of the Gods State Park.

Friday, September 29 through Monday, October 2, 1995

Join us on the Post-conference trip to Estes Park, CO. Located at the base of the awe-inspiring Rocky Mtn. National Park. We will be staying in cabins along an equally awe-inspiring river. Activities include: horseback riding, tour of the Stanley Hotel ("The Shining Hotel"), and hiking galore throughout the park.

We look forward to seeing you soon!

1994 Conference Proceedings Order Form

If you are interested in obtaining a copy of the Proceedings containing the papers presented at the 21st National AAZK Conference held in Omaha, NE, you will need to fill out and return the form below no later than **10 January 1995**. All orders **must** be prepaid in U.S. Funds Only. Allow 4-6 weeks following deadline for receipt of publication. Prices are as follows:

AAZK Member	\$20.00
Non-Member	\$25.00

Postage for U.S. orders is included. Canadian and overseas orders should add \$3.00 for Air Mail postage to Canada and Surface postage elsewhere. Overseas orders wishing Air Mail service should add \$10.00. Make checks payable to AAZK, Inc.

Note: Individuals who presented papers at the Conference **and** submitted a manuscript for inclusion in these Proceedings will receive a gratis copy. If a manuscript was **not** submitted, a gratis copy will not be sent, and those individuals will need to order a copy.

Cost of these Proceedings was NOT part of the Conference Registration fee and delegates wishing a copy will need to order one.

The following papers are among those included in these Proceedings: Artificial Incubation and Hand-rearing of African White-backed Vultures at the Cleveland Metroparks Zoo ~ Seasonality and Captive Management of the Maribou Stork ~ Breeding the Crowned Hornbill at the Houston Zoological Gardens ~ Effects of Environmental Enrichment on Social and Aberrant Behaviors in Drill Baboons ~ Exhibiting Alcids ~ The Return of the Swift Fox to Canada ~ Managing Multiple Elephants Using Protected Contact at San Diego's Wild Animal Park ~ Hand-raising a Siamang at the Houston Zoo ~ Managing Herps in an Aquarist's World ~ The Challenge of Hand-rearing a Geoffroy's Tamarin at the Cleveland Metroparks Zoo ~ The Honolulu Zoo's African Savannah ~ Changes in the Nocturnal Behavior of Asian Elephants Following the Reduction of Group Size ~ Kodiak Bear Exhibit Renovation: Enrichment for Bears, Staff and Students ~ Education Using Animals with Special Needs ~ The Black-footed Ferret Breeding Program at the Metro Toronto Zoo ~ Invertebrate Rescue "Stuck Like Glue" ~ Creating a Mixed Exhibit of Ringtail Lemurs and Ruffed Lemurs ~ An Alternative to Processed Meat Diets: Carcass Feeding at Wildlife Safari ~ 1994 Bowling for Rhinos Workshop Update ~ Early Development Chronology of a Matschie's Tree Kangaroo Through Daily Standing Pouch Checks ~ Rehabilitation of a Young Colobus Monkey ~ Health and Reproductive Challenges in the Captive Management of Matschie's Tree Kangaroos ~ Applications of Confined Contact Management of Giraffes ~ Exhibit Design Resource Notebook Workshop and Reproduction and Behavior of Callithrix Primates: Lessons from the Lab.

We also plan to include any other papers, workshop summaries and poster session abstracts that become available to us by our publication deadline.



Feel free to photocopy the form on the adjoining page to place your order.

Proceedings Order Form
(PLEASE TYPE OR PRINT)

I wish to order _____ copy(s) of the 1994 Omaha Conference Proceedings.

of copies x price per copy = \$_____ Additional postage (if applicable) is \$_____

Total payment for this order is \$_____ (make checks/money orders payable to AAZK)

My check is enclosed _____ Please charge to my VISA or MASTERCARD (circle)

Card # _____ - _____ - _____ - _____ Expiration date: _____

Name on card _____

Signature _____

Please mail to me at address given below:

Name _____

Address _____

City _____ State/Province _____

Country _____ Zip/Postal Code _____

Send this Order Form along with check or money order or payment authorization via credit card to: AAZK Conference Proceedings, 635 S.W. Gage Blvd., Topeka, KS 66606-2066.

ORDERS MUST BE RECEIVED BY 10 JANUARY 1995

Proceedings are only available by sending in your order form now. A very limited number of copies beyond pre-paid orders will be printed. Once these are sold, complete sets of Proceedings will no longer be available. After this, copies of individual papers will be available at \$2.00 each. So ORDER NOW !

Lusaka Agreement Sets Up World's First International Wildlife Task Force

LUSAKA, Zambia-- The third and final round of negotiations between eastern and southern African nations to set up the world's first international wildlife task force was held in September in the Zambian capital of Lusaka.

Hosted by the Government of Zambia in cooperation with the United Nations Environment Programme (UNEP), the negotiating session was followed by a Ministerial session involving high-level delegations from the eight countries participating in the negotiations -- Kenya, Lesotho, Mozambique, South Africa, Swaziland, Tanzania, Uganda and Zambia. The Ministers gathered at Lusaka's Pamodzi Hotel for the purpose of adopting and signing the Lusaka Agreement on Co-operative Enforcement Operations Directed at Illegal Trade in Wild Fauna and Flora, the legal framework for the proposed Task Force.

The Lusaka Agreement's aim is to reduce and ultimately eliminate illegal international trafficking in African wildlife. Interpol has valued the total worldwide illegal trade in wildlife at US\$5 billion a year, second only in monetary value to the illicit trade in narcotics. The effects of this have been particularly devastating for Africa. The last 35 years have seen the loss of 97% of Africa's rhinoceros species and, in many countries, over 90% of elephant populations. Consumer demand in developed countries has been directly responsible for the declines, along with the smuggling of birds, primates, reptiles, rarer species of plants such as cycads and cacti, as well as the illegal trade in tropical timber.

The plan is to set up a multinational African Task Force to combat the international syndicates smuggling wildlife products out of the region. The idea was first conceived by senior African wildlife law enforcement officers at a conference in Lusaka in December, 1992. An essential element of the negotiations has been the continued involvement of those officers at every stage to ensure the proposed Task Force is practical and effective.

The Task Force is to use specialised investigation techniques to penetrate and crack the smuggling syndicates. It is no secret that uncoordinated national efforts are inadequate to prevent these syndicates endangering African wildlife. They respect no frontiers, so to deal with them effectively enforcement operations must also be conducted across borders.

The formula for the Task Force proposes that each Party to the Agreement designates an existing national wildlife law enforcement agency as their National Bureau responsible for liaison with the Task Force. At least one officer from each National Bureau is to be seconded to the Task Force headquarters.

Under agreed rules, these seconded Field Officers, commanded by the Task Force Director, will carry out cross-border operations and investigations, in close liaison with the National Bureaus and be responsible for facilitating close cooperation between them. A Task Force Intelligence Officer will gather and analyze information using a centralized intelligence database.

Closely involved in the development of the Lusaka Agreement have been the Secretariat of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), Interpol and the United States Fish and Wildlife Service, which participated, along with observers from donor countries. As well as contributing to the costs of the forthcoming meeting in Lusaka, the USFWS has sponsored the training of officers from African countries involved in the Lusaka Agreement on a course in covert wildlife investigations at the Federal Law Enforcement Training Centre in the United States. Generous financial support for the Lusaka meeting has also been received from the Governments of Denmark, Norway and the United Kingdom.

The Zambian Minister of Tourism, Lt. Gen. C.S. Tembo, took a lead role in promoting the Lusaka Agreement in its early stages. Commenting on the importance of the Agreement to Africa, he said "The Lusaka Agreement is a sorely needed initiative to halt the criminal

Lusaka Agreement, *Continued*

theft of Africa's wildlife through international illegal wildlife trafficking. This traffic is the main incentive to wildlife poaching through which Africa sustains gross biological and economic losses. Assisted by UNEP, CITES, Interpol and USFWS, Zambia and its sister African States have initiated one of the most promising conservation developments in recent years. We understand it is arousing interest beyond Africa which we hope may lead to the development of similar initiatives in other regions. We would welcome this since, ultimately, the money sustaining poachers in Africa and other less developed regions comes from trafficking in the developed world."

UNEP's Executive Director, Ms. Elizabeth Dowdeswell, who attended the Lusaka Ministerial meeting, commented on the Agreement's wider significance: "All too often conventions and agreements are negotiated with the best intentions in mind but little attention is paid to their effective enforcement. The practical capacity of Parties to legislate and provide for this is essential if the aims of these conventions are to be realized. The potential value of the Lusaka Agreement needs to be perceived in this light."

The Lusaka Agreement is relevant both to CITES and the implementation in Africa of the Convention on Biological Diversity. As the biotechnology industry expands so do demands for yet unexploited wild strains of species. There is currently a trend to speed the collection of living biological resources for use in industrialized countries before the Africa region can implement the Convention effectively. This trend needs to be reversed if Africa is to maintain its biological resources for the benefit of future African generations. Since the Lusaka Agreement aims at halting all illegal trade in wild fauna and flora, the proposed Task Force will also be able to address unauthorised removal of genetic material.

A draft budget to launch the Task Force and finance its first year of operations, is currently estimated at about US\$900,000. The Agreement is open to accession by any African State.

For further information, please contact:

Dr. Rosalind V.A. Reeve, UNEP Lusaka Agreement Coordinating Secretariat, or Mr. Richard Lumbe, UNEP Information Officer, at the Pamodzi Hotel, Lusaka, Tel. (260-2) 254602/8 or 254455; fax: (260-2) 254622 or 254005

Mr. Jim Sniffen, UNEP Information Officer, Nairobi, Tel. (254 2) 623084; fax: (254-2) 623692; e-mail: ipaunep@gn.apc.org

>*UNEP News Release 1994/32*



Information Please

The Columbus Zoo is currently looking into flooring alternatives to cement for our giraffes. We would like to hear from any place utilizing such substitutes as rubber flooring, grit, sand, etc. We are also interested in squeeze gates, chutes, or any other restraint mechanism for giraffes. If you have any information on either item, please contact: Carl Gyarmaty, Herbivore/Carnivore Complex, Columbus Zoo, 9990 Riverside Dr., Powell, OH 43065-0400. Phone (614) 645-3412 or FAX (614) 645-3465.

On Lion Introductions: we currently have 1.2 (separated at present). 1.1 have been together before and the other female has never been introduced to other lions since she was a cub. Please describe conditions such as: if females should be introduced together first, if introduced to male separately, familiarization attempts before actual intro, etc. A description of quarters as well as any other information would be greatly appreciated. Contact: Holly Tozier or Dale Berryman, Pueblo Zoo, 3455 Nuckolls Ave., Pueblo, CO 81005. Call or FAX (719) 561-8686.



AAZK Book Sale

(December 1994)

List the book(s) that you want and include your name and complete mailing address with your order. Please make check or money order payable to: AAZK Beardsley Zoo Chapter. Include shipping fee of \$2.00 for the first book and \$1.00 for each additional book. (No cash or CODs, please. U.S. FUNDS only). Mail order to: AAZK Beardsley Zoo Chapter, attn: Jeanne Yuckienuz, 1875 Noble Ave., Bridgeport, CT 06610-1600.

<u>Sug. Price</u>	<u>Sale Price</u>	
\$2.50	\$2.00	<u>Bats and Other Animals of the Night</u> by Joyce Milton. Children learn about bats, cats' eyes and other interesting facts of the nocturnal animals around them. 32 pgs. paperback, for ages 3-7.
\$8.95 ea	\$7.16 ea	<u>Life on a Limb and Nighttime in My Backyard</u> by Donald M. Silver. Each interactive book for children provides scientific understanding of the world through the use of pop-ups, pull tabs, flags and spinning wheels. 12 pgs. each volume, hardcover, for ages 3-7.
\$14.95	\$11.95	<u>Nightprowlers</u> - Jerry Emory. Young adults can discover some of the mysterious activities of nocturnal animals. 48 pgs., paperback, for ages 8-12.
\$16.95	\$13.55	<u>Skeletons: An Inside Look at Animals</u> - Jinny Johnson. An oversized book full of answers to questions concerning animal mechanics. 48 pgs, hardcover.
\$29.95	\$23.95	<u>Witness: Endangered Species of North America</u> - Photography by Susan Middleton & David Littschwager. A collection of photographs including 100 species of plants and animals for a total of 200 photos. 256 pgs, paperback.
\$24.95	\$19.95	<u>The Nature of Nature: New Essays from America's Finest Writers on Nature</u> - Edited by William Shore. A collection of essays with varying viewpoints on nature and civilization. 356 pgs., hardcover.
\$40.00	\$32.00	<u>Warblers of the Americas: An Identification Guide</u> - Jon Curson. All 116 species are identified. 320 pgs., hardcover.
\$8.99	\$7.19	<u>Garden Pools, Fountains and Waterfalls</u> - Sunset Editors. paperback.
\$16.95	\$13.55	<u>Peterson Field Guides</u> - varied # of pages, paperback Medicinal Plants - Eastern & Central Pacific Coast Fishes Western Reptiles & Amphibians

Sincere thanks from Wendy Shaffstall (Marshall), Erie Zoological Gardens, to all those delegates at the Omaha Conference who signed the wedding congratulations card that was circulated. Special appreciation to all those who shared advice, jotted a personal note or words of encouragement.

ELECTION.....'95

WE WANT YOU! Do you wish to help your professional organization? Become an AAZK Board Member. Four seats are up for election - those held by Ed Hansen, Ellen Bradfield, Mark de Denus, and RachéL Watkins Rogers whose terms expire at the close of the 1995 National Conference. New board members will serve a four-year term from the close of the 1995 National Conference until the conclusion of the 1999 National Conference. Why is this first call for nominations so early? **TIME** is the answer. Nominations, candidates verification and tallying mailed ballots require time. We also wish to notify winners early enough to allow them to make arrangements to attend the National AAZK Conference **before** they assume office. This will enable the new Board Members to become familiar with Board responsibilities and AAZK activities before they assume responsibility for our organization.

Duties of the Board of Directors

For a more detailed explanation of the expanded duties of the Board, refer to the By-Laws (available upon request from Administrative Offices in Topeka, KS).

- 1) Select, appoint or remove officers, committees, agents and employees of the Association, including - prescribing powers and duties.
- 2) To control and manage the Association and its property, passing upon acquisition and disbursements with approval of a majority of the Board.
- 3) To formulate policies, rules and regulations in accord with the Constitution & By-Laws.
- 4) To uphold the Constitution of AAZK and the policies of the Association.
- 5) To appear at Board meetings, to accept Board assignments and to devote the time to communications pertinent to all Board business, including answering correspondence promptly and efficiently.

Qualifications for Nomination

- 1) Nominee must be a Professional Member of AAZK, Inc. in good standing and must have been a member of the Association for at least one year.
- 2) Nominee must be presently employed as an animal keeper/attendant, veterinary technician, research technician or other personnel directly connected with the care, feeding and educational display of captive wildlife in a recognized zoological park, aquarium, animal reserve or other animal care facility in the U.S. or Canada and must have been in the zoological field for at least two years.

Nomination Procedure

- 1) Nominator Form:
 - a. List the name of the nominee, phone, address, and institution.
 - b) State in 150 words or less the reason(s) why the nominee warrants election to the Board of Directors.
 - c) Nominator signs forms and mails to NEC Chairperson.
 - d) Notifies nominee that they nominated him/her for the Board.
- 2) Nominee Biographical Form:
 - a) Professional background: places of employment, length of service, titles.
 - b) Membership in AAZK: National and local chapters, number of years, offices held, involvement in activities.
 - c) Educational background.
 - d) Membership in Affiliate Organizations: (AZA, Audubon, NWF, etc.)
 - e) State in 500 words or less why you would like to be on the BOD and any other pertinent information. (optional)
 - f) References. (one or two)
 - g) Nominee signs forms and mails to NEC Chairperson.

NOTE: Candidate is ineligible for nomination if **both** the nominator and nominee biographical **forms** are not **complete** and **returned** to the NEC Chairperson by **31 January 1995**. Send to: RachéL Watkins Rogers, Interim NEC Chair, Mammal Dept., San Diego Zoo, P.O. Box 551, San Diego, CA 92102.

Nomination Form for AAZK Board of Directors

Qualifications for Nomination:

- 1) Nominee must be a Professional Member of AAZK and must have been a member of the Association for at least one year.
- 2) Nominee must be presently employed as an animal keeper/attendant by a recognized zoological institution or aquarium in the U.S. or Canada and must have been in the zoological field for at least two years.

1. Name of Nominee: _____

Address: _____

Phone: _____

Institution: _____

Director: _____

2. State in **150 words or less** the reason(s) why the nominee warrants election to the AAZK Board of Directors.

3. Signature of Nominator: _____

4. Form must be received by the NEC Chairperson **by 31 January 1995**.
Send to: Rachél Watkins Rogers, NEC Interim Chair, Mammal, Dept., San Diego Zoo, P.O. Box 551, San Diego, CA 92112.

Nominee Biographical Form
for AAZK Board of Directors
(To be completed by Nominee)

1. Name: _____

Address: _____

Phone: _____

PLEASE LIST THE FOLLOWING INFORMATION

2. Professional Background: (places of employment, length of service, titles)

3. Membership in AAZK:

a) National: number of years _____

Activities:

b) Local Chapter(s): number of years, offices held, involvement in activities.

4. Educational Background:

5. Memberships in Affiliate Organizations: (AZA, Audubon, WWF, etc.)

6. State in 500 words or less why you would like to be on the BOD and any other pertinent information. (optional)

7. References (one or two): give name, address and phone number where they can be reached:

8. Nominee's Signature:_____

9. Form must be received by NEC Chair by 31 January 1995. Send form to: Rachél Watkins Rogers, NEC Interim Chair, Mammal, Dept., San Diego Zoo, P.O. Box 551, San Diego, CA 92112.

Zoo Infant Development

Two-Volume Reference Set

Edited by Harmony Frazier, LVT, Woodland Park Zoo, Seattle, WA and
Kathleen Hunt, B.A., Dept. of Zoology, University of Washington



The American Association of Zoo Keepers, Inc. is pleased to announce the availability of an important reference work. This 1820-page, two volume set is a reference manual of the physical and behavioral development of parent-reared mammal infants in captive collections. These volumes include normal rearing information and weights for many species and can be quickly utilized for quick comparison and reference when deciding whether an infant is being properly cared for or is in need of intervention.

The volumes are divided into four sections: 1) Infant Development Data Sheets (a total of 419 individual records); 2) Weight Data (including many charts and graphs); 3) Bibliography (144 pages of bibliographic references) and 4) Index (species included are indexed by both common and scientific names). The Infant Development Data Sheets and the Weight Section are subdivided by color coded taxonomic ordertabs. The Zoo Infant Development Notebook is packaged in two sturdy 2-inch expanded D-ring binders and include a full-size page lifter for ease of use.

AAZK, Inc. is please to be able to offer this important publication to our individual membership categories (Professional, Affiliate, Associate and Contributing) for a SPECIAL INTRODUCTORY PRICE of \$90.00 until 10 January 1995. AFTER that date, the individual member price will be \$125.00. In order to purchase at this special price, all orders must be postmarked by 10 January 1995 - Postmarks dated later than 10 January 1995 will NOT be accepted.

To order, fill out the form below and return with your payment to: AAZK, Inc. ZIDP Notebook, 635 S.W. Gage Blvd., Topeka, KS 66606-2066 U.S.A. Checks or money orders should be made payable to "AAZK, Inc." (U.S. FUNDS ONLY). If using a credit card, make sure to complete all requested information on form. Prices are:

AAZK Members \$90.00 Nonmembers \$150.00

Prices include Domestic Book Rate Postage. Overseas orders must add \$40.00 for parcel post surface shipping. Canadian orders will be mailed within Canada.



ZIDP ORDER FORM

I wish to order copy (ies) of ZIDP Notebook. (Please Circle) AAZK Mem. NonMem.

Name: _____

Address: _____ City: _____

State/Province: _____ ZIP/Postal Code: _____ Country: _____

I wish to pay by: CHECK/MO MASTERCARD VISA

CREDIT CARD # - - - Expiration Date: _____

Name as it appears on credit card (please print) _____

Signature: _____ TOTAL ENCLOSED \$ _____

Scented Vinegars for Behavioral Enrichment of Ocelots

(*Felis pardalis*)

By Karen E. Powell, Keeper, Sonoran Desert Exhibit
North Carolina Zoological Park, Asheboro, NC

The North Carolina Zoo began using vinegar as a glass cleaner to avoid chemical or ammonia build-up from standard window cleaners in exhibit substrates. Since felids are responsive to scent in their enclosures this provided an opportunity to incorporate enrichment into the daily routine.

Currently the herbs are grown on zoo grounds by the horticulture staff. Keepers are planting a perennial herb garden behind the Sonora Desert exhibit building to give easy access to a larger variety of herbs.

Equipment:

- Gallon milk jugs or 1/2 gallon plastic juice containers
- Cider vinegar (acidity 5%) or Distilled White vinegar (acidity 4%)
- Herbal cuttings or flower parts

Herbs used at NCZP:

- | | |
|--|--|
| - Catnip (<i>Nepeta cataria</i>) | - Rose-scented Geranium (<i>Pelargonium graeolens</i>) |
| - Orange Mint (<i>Mentha spp.</i>) | - Caraway Thyme (<i>Thymus spp.</i>) |
| - Lemon Balm (<i>Melissa officinalis</i>) | - Pineapple Sage (<i>Salvia elegans</i>) |
| - Dianthus flower petals (<i>Dianthus chiensis</i>) | |
| - Nasturtium flower petals (<i>Trapa oleum vulgaris</i>) | |

Preparation:

Wash the leaves thoroughly and pat dry. Crush the leaves to release the volatile oils. Chopping the herbs does not work very well as the fine pieces tend to clog most spray bottles. Place the leaves into the plastic jug and fill to the top with vinegar. The more herbs that are used, the stronger the scent will be. Recap the container with a tight-fitting cap. It is best to keep the leaves covered with vinegar to prevent decomposition. For the longest shelf life, store in a cool, dry place away from direct sunlight. If vinegar begins to smell musty, appears moldy or as if it has fermented, do not use.

Usage:

This mixture has been used at a dilution of 4:1, water: vinegar. Any strength could probably be used to elicit a more dramatic behavioral response. It can be used to clean exhibit glass, sprayed on substrates, bedding, enclosure walls or furniture. The possibilities for applications are limited only by the keeper's imagination. Be prepared, however, the spraying of these vinegar scents will most likely be a direct invitation to spray-mark wherever the scent has been applied.

Scented Vinegars for Behavioral Enrichment of Ocelots, Continued

Conclusion:

This technique is being used with two adult male Ocelots. These cats are full siblings and housed in the same exhibit. Both cats have responded to scented vinegars with varying interest levels. Behaviors observed following the use of these scents include: scratching exhibit furniture, rubbing objects with cheeks and head, rolling in and on the substrate where scent has been applied and "play" behavior. Both cats have been observed licking the glass after the scented vinegar has been used for cleaning. By applying the scent to a desired area, it might be possible to direct the cats to urinate in that location. Directly this behavior could be useful in collecting urine and fecal samples. One important reminder - as with other types of enrichment, overuse of these scents tends to result in a reduced reaction. It is probably best to keep some sort of schedule of usage in order to maintain the novelty of the enrichment.

Any questions about this type of enrichment or if you have other ideas you would like to suggest, please direct them to: Karen E. Powell, c/o Animal Division Sonoran Desert Exhibit, North Carolina Zoological Park, 4410 Zoo Parkway, Asheboro, NC 27203.



Assistance Please

Mammal Milk Needed for Lysozyme Study

Milk from any species of mammal is needed for a comparative study of milk lysozyme (EC 3.2.1.17; muramidase) activity. This study is intended to identify and characterize differences in milk which may be important in conservation efforts involving rearing of young animals. Although milk samples for all mammals are encouraged, we would particularly like to receive samples from the following species: Buffalo, Deer, Giraffe, Reindeer, Elk, Goat, Caribou, Cow, Camel, Llama, Sheep, Rabbit, Dog, Cat, Elephant, any Marine Mammal, Chimpanzee, Gorilla, Bear, Lion, Tiger, Horse, Pig, Zebra, Leopard and Rat. Ideally, we would like to receive a sample within 24 hours after a baby is born, one 7 days later, and one one month later. However, any milk samples will be appreciated.

Milk samples need only be frozen and shipped on dry ice. We will pay for shipping and handling. Samples can be accepted until late January 1995.

If possible, colostrum - one week and one month samples are appreciated.

For further information, contact:

Joy Truesdale (708) 301-9161 or

Dr. Frank Pascoe, Dept. of Natural Sciences
College of St. Francis - Joliet, IL
Phone: (815) 740-3814
e-mail facnspascoef@vax.colsf.edu

I am presenting a paper at the AZA Regional in March and am requesting assistance in gathering information on various methods of improving knowledge and increasing skills for zoo keepers. I would like to hear from anyone with ideas/experiences on programs, seminars, speakers, workshops, etc. which they found useful and effective for continuing keeper education. I am interested in any and all possibilities from an informal Brown Bag lunch program for zoo staff to a more formally organized seminar. Please send any information about your experiences to: Cathy Short, P.O. Box 223, Horse Cave, KY 42749.



Quarantine: Why Is It Necessary?

By

Barbara Webb, CVT

*Veterinary Technician, Quarantine Keeper
Zoo Atlanta, Atlanta, GA*

The favorite phrase when a new animal arrives to an animal facility is "When can I see it?" The response should always be the same whether it is a keeper or a technician in charge of caring for all animals in quarantine. "When quarantine is over!"

What is Quarantine?

Quarantine is a time when any animal - reptile, amphibian, bird, fish or mammal, is isolated or housed with animals of its own kind from the same shipment for a period of time to prevent the spread of disease to or from the established animals or the general public. This time can range from 30-180 days. The time period is chosen based on the prepatent period of disease in which the animal is susceptible.

What happens during the quarantine period?

During this time the animal is examined by the veterinary staff. Ecto- and endoparasites are identified and treated. TB test and vaccination programs are started. The animal has blood collected for baseline data and sometimes viral studies are done. Other tests can be run at the discretion of the veterinarian depending on the animal and its origin. Also during this time the quarantine keeper can determine feeding behavior and get the animal acclimated to the new environment in which it will be living. The quarantine keeper can start the pattern of a daily routine for the keeper staff. During this quarantine period the quarantine keeper watches for any signs of illness such as going off diet, changes in urination and defecation, any unusual discharges from the nose, penis or vaginal areas or even the eyes. Changes in mucus membrane coloration and weight gain or loss should be noted and reported to the veterinarian.

But why should quarantine be done at all, can't the keepers watch for all this while the animal is on exhibit?

As stated earlier, quarantine is the time to prevent the spread of disease. The spread of disease not only can be an economic problem but also a public health concern. With well over 200 potential zoonotic diseases in the United States alone, this type of disease spread could have an overwhelming impact on a collection and on the general public.

Why would the spread of disease be more prevalent at this time?

Any type of change - even desirable change such as diet - can be stressful to a living organism. This requires the animal to adapt.

During these periods of adaptation, animals are more likely to contract diseases and/or to shed organisms (bacterial, viral or parasitic) that would normally not be harmful. A good example of this is the latent carrier of *Salmonella* ssp. This type of carrier has the bacteria present in its system, but shows no signs of the disease. It may not be shedding the disease in the feces on a regular basis. During periods of stress, this animal could start shedding large numbers of organisms or even become ill.

Diseases such as this can come from the established herd if the animal was put directly with them even though the established herd was not showing signs of disease. At other times stress will allow a disease to spread within the animal or to others from recent or chronic exposure before the animal was shipped.

Other causes of stress on these animals come from shipping, captivity, climatic adjustments, and over-crowding of holding facilities. Even times of parturition or egg laying can be stressful to an animal.

Quarantine: Why Is It Necessary?, Continued

What is a zoonotic disease?

A zoonotic disease is any disease that can be detrimental to both human and animal. It can be any disease in which humans have mild symptoms; in turn they become the primary host and transmit the disease to animals that they come in contact with. This can be very devastating in animals. (eg. TB) Also, it can be any disease that is asymptomatic in animals but very harmful or even fatal in humans.

Zoonotic diseases can be any type of pathogen ranging from bacterial, fungal, viral, parasitic, mycoplasmal and spirochetal. Some of the more common zoonotic diseases are rabies, tuberculosis, brucellosis, influenza, toxoplasmosis, hepatitis, salmonella and strongyloidosis.

How are these diseases transmitted?

These diseases can be transmitted by two means: direct or indirect contact. Direct contact can come from bites, scratches or handling of animal tissue. Indirect contact of a disease comes from infected urine, feces, body secretions, blood, soil or from aerosolizing any of the above.

Can the spread of disease be controlled?

Yes, zoonotic diseases can be controlled through a multi-step procedure:

- 1) quarantining all new animals;
- 2) being knowledgeable about the potential diseases of different animals and if there are any endemic diseases in the country they are coming from;
- 3) preventing bites and scratches by using proper restraint techniques;
- 4) wearing protective clothing, gloves, mask, boots and even protective eye gear (Foot baths can be used but must be changed on a regular basis. This is due to the immediate inactivation of most disinfectants when they come in contact with organic material.);
- 5) maintaining a rodent and insect control program;
- 6) good sanitation of waste, proper ventilation of areas and minimizing the creation of aerosols.

These are all essential in controlling disease.

What else can the quarantine keeper do to prevent the spread of disease?

The quarantine keeper can do a number of things beginning with:

- 1) good personal hygiene and washing his/her hands often;
- 2) having routine TB checks and updating vaccinations for measles, polio, rabies, mumps, tetanus and having protection from hepatitis;
- 3) if the animal caregiver is sick with such things as the flu, they should avoid the area or wear face masks, especially if they are working in nonhuman primate areas;
- 4) individuals with known immunodeficiencies should use extreme caution (These individuals can be HIV positive or receiving anti-cancer therapy or steroid medications.);
- 5) females who are pregnant.

Everyone should always be aware of their actions and take responsibility for reducing the potential spread of disease.

What can the quarantine keeper do to minimize the animals' stress during the quarantine period?

The quarantine keeper should review with both the curators and keepers the behavioral patterns of an animal before it arrives into quarantine. The curators and keepers will be helpful in determining the type of bedding, perching material and nest or hide boxes that

Quarantine: Why Is It Necessary?, *Continued*

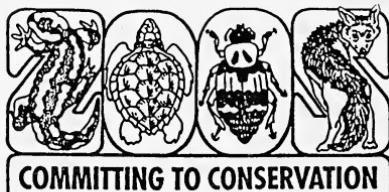
will be suitable for each animal. Behavioral enrichment of the animals in quarantine is very essential especially if quarantine is for an extended period of time. Some behavioral enrichment items that can be used are tires, play toys (logs and Boomer Balls®), different types of feeders (PVC pipe feeders and puzzle boxes), radios, and even moving or spreading food in a quarantine holding area can be beneficial. One must remember that any item used during quarantine must be either totally disinfected or incinerated at the end of quarantine, thus making some items too expensive to use during this time. Some of these items are rope and cargo nets.

What should the keepers do once they receive the animal from quarantine?

Keepers should review diet and behavioral habits with the quarantine keeper. All keepers should always wear face masks when there is a potential to aerosolize waste. Proper gloves should be worn when cleaning up waste or handling an animal, especially non-human primates. Keepers should also follow the same guidelines as stated above for quarantine keepers.

In conclusion, quarantine is an essential part of all animal handling facilities from the simple family farm to the complex world of zoos and aquariums. Quarantine is a two-way street: to prevent disease coming to the new animal or from the new animal to the established herd. It is everyone's responsibility to help prevent the spread of diseases during and after the established quarantine period. A healthy, disease-free animal will be more of a benefit than a hindrance to human and animal alike.

(Editor's Note: This article originally appeared in the 1993 AAZK National Conference Proceedings. If you would like more information about zoonotic diseases, AAZK has available The Zoonotic Diseases Handbook. It sells for \$6.50 for AAZK members; and \$10.00 to non-members. Canadian and foreign orders should add \$3.00 for Air Mail postage. It may be ordered from Administrative Offices, 635 S.W. Gage Blvd., Topeka, KS 66606-2066.)



COMMITTING TO CONSERVATION

THE COLUMBUS ZOO • JULY 13 - 16, 1995

We hope to inspire and assist zoos that have yet to become involved in *in-situ* and use already existing projects as concrete examples of how a commitment to conservation is in the best interest of zoological institutions. In order to make our conference more affordable to all and increase the potential for networking, our registration fee will cover the cost of many social events and meals.

Tentative topics include: Connecting with a large conservation organization; Connecting with small N.G.O.'s; Sources for seed money; Environmental Education Projects; How to start a conservation project on \$1,000; Keeper-initiated conservation projects; Utilizing volunteer talent as a conservation resource; The role of zoos as a support infrastructure; Sponsorship of biologists in the field; and Assessing the benefits to indigenous people.

If you are interested in more information, would like to attend this conference or would like to present a paper please contact either Beth Armstrong/Ape House or Beth Pohl/Children's Zoo at The Columbus Zoo, Box 400, 9990 Riverside Drive, Powell, OH 43065-0400. Phone (614) 645-3426 or (614) 645-3442.



The Columbus Zoo is pleased to announce that in 1995 it will be hosting a conservation conference entitled ZOOS: COMMITTING TO CONSERVATION from 13-16 July 1995. The goal is to bring together field researchers and zoo personnel from all levels in order to promote *in-situ* conservation. Examples of successful projects and how zoos served a vital supportive role will be our main focus.





By Kayla Grams, Arizona-Sonora Desert Museum
and Gretchen Ziegler, Wildlife Safari

At the 1994 National AAZK Conference in Omaha this October, the newly formed national Enrichment Committee met for the first time and formulated a set of short and long-range objectives. The following is a list of several of these goals:

1. Help zoos develop enrichment committees and programs.
2. Lend advice on staff support through fundraising projects, budgeting, and utilization of volunteers.
3. Establish contacts with field biologists to incorporate natural behaviors into husbandry.
4. Facilitate dispersal of ideas by creating a computer database for cataloging information.
5. Encourage the incorporation of enrichment into mission statements, job descriptions, and daily reports.
6. Assist in the development of enrichment curriculums for any universities or colleges offering coursework pertinent to zookeeping.
7. Promote public education via local medias, zoo graphics, volunteer workshops, and possibly a documentary.
8. Include enrichment into AAZK by-laws as well as working with AZA.
9. Develop standardized idea and evaluation enrichment forms.
10. Make contacts within institutions to promote staff exchanges focusing on enrichment.
11. Work with Exhibit Design Committee to incorporate enrichment into exhibit design.
12. Encourage research and documentation of enrichment ideas.
13. Publish a new catalog of ideas.

A survey was handed out at the workshop to gather information that will help us develop these goals to meet the needs of the profession. Results of this survey are currently being compiled. If your institution did not fill out a survey and would like to, or if you have a survey that you have not sent yet, please contact: Dianna Frisch, Columbus Zoo, 9990 Riverside Drive, Box 400, Powell, OH 43065.

A networking list of keepers and their areas of interest was created at the workshop. A copy of the list will be sent to the participants and anyone interested. Please contact Dianna on this as well.

The Committee worked hard and took on some hefty goals. We will need help from everyone to make them happen - this is your committee! We will keep you updated in future columns about specific projects.

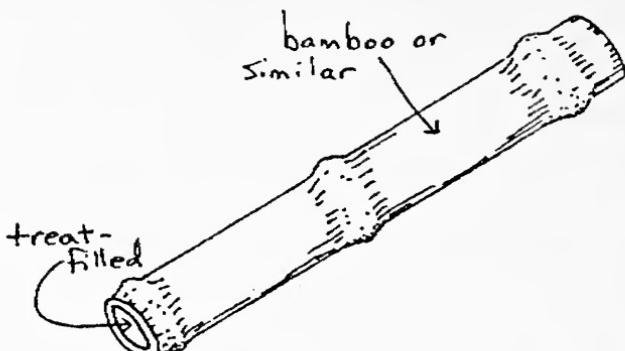
TORTOISES/TURTLES Small clumps of grass dug up and put in exhibit. Both enjoy nibbling on blades of grass or hiding it. Also hollow logs added for hiding and a tub of water for bathing.

PORCUPINES: Offer fresh browse (elm, willows), peanuts, grapes, and raisins. The exhibit they are in also has many limbs, branches, hollow "hiding" holes all visible to the public, but shelters the nocturnal animal.

--Fawn Prevost Dyck, Keeper
Topeka Zoo, Topeka, KS

Enrichment Options, *Continued*

GUM FEEDER: Bamboo cored and filled with diet; allows gnawing.



Gum feeder: bamboo cored and filled with diet; allows gnawing.

--Bruce Clark, Curator
Jackson Zoo, Jackson, MS

TAMANDUA: A 'new' old log is added to display for animal to destroy about 2-3 times a month. Mealworms can be added to hollow spaces of trees and logs. We were able to condition our female with mealworms to allow us to do vaginal swabs and ultrasounds.

PRIMATES: Ropes and Boomer Balls® on the end of a rope to swing on. Our DeBrazza, Blues and Celebes all enjoy bouncing off the rope and swinging on the ball. We also offer parrot feed along with monkey chow in A.M. to encourage activity and browsing.

--Darlene Klimek, Asst. Supervisor Small Mammals
Omaha's Henry Doorly Zoo, Omaha, NE



THE PERFECT HOLIDAY GIFT
FOR ZOO LOVERS

A GUIDE TO AMERICAN ZOOS & AQUARIUMS

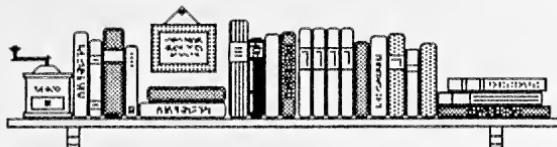
by Darcy & Robert Folzenlogen

Visitor Information, Special Exhibits, Seasonal Festivals, Breeding
Achievements & Research Activities for 173 Institutions

Recommended in the AAZK and AZAD journals!

Suggested Retail Price: \$16.95

Now only \$10.00 for AAZK members. No shipping fee in U.S. Limit: 4 books
Willow Press, 6053 S. Platte Canyon Rd., Littleton, CO 80123



Book Reviews

The Wilderness Condition: Essays on Environment and Civilization

Edited by Max Oelschlaeger

Sierra Club Books, 100 Bush St., 13th Floor,
San Francisco, CA 94104
Hardback \$30.00

*Review by Missy Betcher-Lodge
Editor H.O.R.N.*

*Ngare Sergoi Support Group
Columbus, OH*

Numerous books have been written about environmental problems and what must be done to ensure the environment's survival. But, The Wilderness Condition takes a rather unique approach to conservation issues. In a series of ten essays the authors explore the philosophical reasons that have led to the current status of the environment.

This is not a book for the faint of heart. The authors are all professors -- six in Philosophy, two in English, one in Land Resources, and the other directs an experimental learning center. Because of the authors' backgrounds, the essays can at times be exceedingly difficult to read and understand. The technical terms and allusions to philosophers may be an immediate turn-off. The only way to appreciate this book is to read it in small bits, let the material digest, and really think about what is being said. Because hidden deep within the psychological and philosophical jargon there are some good (and often controversial) points.

As an example, in his essay Oelschlaeger writes "fields", "weeds" and associated concepts were only the beginnings of a veritable tidal wave of anthropomorphic rationalizations used to justify, legitimate and guide the transformation of wilderness into civilization." However, it is an interesting concept concerning the environmental situation. The key to this sentence and the central theme in many of the essays is language. We are taught that "weeds" are bad, they must be tamed into neat flowerbeds. Likewise, "wild" means unruliness, disorder, and even violence. It is no wonder that people tend to fear the environment. It has been defined in such a way that it has become something man cannot control and therefore is bad. What the authors tell us is that the first step to saving the environment is to accept it as it is. As Erazim Kohak points out, we must shift our perception from Nature for Us to Nature For Itself.

Although the language concept predominates, it is not the only issue addressed in the book. One of the most controversial occurs in Paul Shepard's essay on the hunter-gathers. He states that vegetarianism is hypocritical because it is not natural to the human species. Further, he contends vegetarianism was begun by women who perceived hunting as sexist.

The Wilderness Condition brings together many interesting, unexplored environmental concepts. Yet for many people, it will be too difficult to comprehend and appreciate. It is too bad because these concepts deserve to be explored by all persons interested in the environment, not just the ethnophosophers. Hopefully, someone will soon present these concepts in more basic language. In the meantime, those who are deeply interested in how our assumptions about nature impedes conservation may wish to try to absorb the messages of The Wilderness Condition.

Book Reviews, *Continued*

Noah's Ark

By Rien Poortvliet - 1986

Harry N. Abrams, Inc.,

100 Fifth Ave., NY, NY 10011

Hardback \$49.50

Review by Melba Brown

National Zoological Park

Washington, DC

Never has the story of Noah and the Ark been told in a way that pleases the eye more than that of Rien Poortvliet's version. For those who may not know of this biblical account, it involves a man, Noah, who builds an ark despite public criticism. This ark houses numerous pairs of animals during a great flood that lasts for days. After the flood, the ark's inhabitants go forth and multiply (nutshell version).

Noah's Ark is a joy to read. The reader goes through the whole ordeal with Noah but often stops to marvel at the multitude and splendor of animals. Even though this book is based on the King James version of the Flood, Poortvliet manages to slip in pieces of himself and musings on nature such that the basic story is enhanced. The handwritten text adds to the artistic style of the book. Quite unexpectedly, Poortvliet sprinkles the text with bits of humor that are rather delicious. The accompanying 'studies' are very comical. I do not want to disclose too much, but it would be time well spent if you secured a copy of this wildly creative work.

Noah's Ark concludes with an invitation to help the World Wildlife Fund with its many efforts. I recommend this book to everyone, religious or not. After seeing Poortvliet's portraits of wildlife, one cannot help but appreciate animals more. So, pour a cup of tea, sit back and enjoy Noah's Ark.



IVORY SEIZED AT BRUSSELS AIRPORT

BRUSSELS, Belgium -- In late August, WWF-World Wide Fund For Nature welcomed the seizure of 63.5kg of ivory by the Belgian customs officials at Brussels airport .

The ivory consignment, camouflaged as painted wood, was enroute from Kinshasa, Zaire, to Shanghai, China. The ivory, in 700 to 800 pieces of about 10cm in length, was packed in small but heavy parcels. The total value is estimated to be US\$10,000 to US\$15,000.

A week earlier, Belgian customs officials had intercepted a 101.9kg parcel, also containing ivory disguised as wood, and also on its way from Zaire to China. This particular type of camouflaged ivory has up to now only been picked up in South Africa, the UK, and Belgium.

"Sending ivory by mail in small parcels is a new form of smuggling that is extremely difficult to detect," said Tom De Meulenaer, Director of TRAFFIC Europe. "The European Union must improve customs controls for wildlife trade. Otherwise they will never succeed in stopping this smuggling."

When asked what action smugglers will take when they realize Brussels Airport is tightening controls, a Belgian customs official responded that they would now probably switch to Paris or Amsterdam. He pointed out the Belgian customs would rely on cooperation with TRAFFIC to warn other EU customs offices of the nature of the shipment.

Implementation of CITES in the European Union was discussed at the CITES Conference in Fort Lauderdale, FL last month. CITES is the Convention on International Trade in Endangered Species of Wild Fauna and Flora. TRAFFIC (Trade Records Analysis on Flora and Fauna in Commerce) is the wildlife trade monitoring arm of WWF.

>WWF News Release 8/23/94



Chapter News

AAZK Welcomes New Chapter

AAZK, Inc. is pleased to welcome the Florabama Chapter into the Association. This newly chartered Chapter has members from The Zoo at Gulf Breeze, FL and Zooland at Gulf Shores, AL. This Chapter is the first to incorporate members from two States.

Officers for the Florabama Chapter are:

President.....Thomas S. Akin
Vice Pres.....Carol G. Porter
Secretary.....Carol Opie
Treasurer.....Sean Royals
Chapter Liaison.....Tim Closson

The mailing address for the Chapter is:
Florabama AAZK Chapter, c/o Thomas Akin,
The Zoo, 5701 Gulf Breeze Pkwy,
Gulf Breeze, FL 32561.

AAZK, Inc. wishes this new Chapter much success in all their activities!

Knoxville Zoo AAZK Chapter

Newly elected officers for the Knoxville Chapter are:

President.....Stacey Lester (2nd year)
Vice Pres.....Terry Cannon
Secretary.....Sarah Glass
Treasurer.....Rocky Sylar (2nd year)
Chapter Liaison.....Theresa Collins
(2nd year)

This June we held our first Bowling for Rhinos and it was a great success. We raised over \$2000.00 and all had an enjoyable time. We would especially like to thank Starlite Lanes for donating their facility to us for two evenings.

Also at the July meeting we talked about possible fundraising projects, such as a Zoo Calendar, and continuing existing projects. Our bake sales and Zoo Photo sales have both been going well. We were all very excited to get our first glimpse of our new rainforest Conservation Parking Meter which was unveiled at the meeting. Many thanks to the East

Tennessee Exotic Bird Association who raised the money to buy it for us. It is currently installed by the front gate where visitors will be sure to notice it.

--Sarah Glass, Secretary

Riverbanks Zoo AAZK Chapter

The Riverbanks AAZK Chapter is not quite two years old and this is our first submission to AKE. Our officers for 1994 were:

President.....Keith R. Harris
V.P./Liaison.....Valerie Pruett
Treasurer.....Tamara Burton
Secretary.....Kristin LaHue

The Chapter's second Bowling for Rhinos raised \$500.00 for the Ngare Sergoi Sanctuary and the Ujung Kulon National Park. Many thanks go out to the bowlers and corporate sponsors for their support.

The Chapter's new logo appears below. The logo was designed by Jami Steele and depicts a DeBrazza monkey, Palm cockatoo, and Horned viper. Since the Chapter adopted the logo, Jami has left Riverbanks to pursue other career opportunities. We wish her the best!

--Keith R. Harris, President



Chapter News. Continued

AAZK Honolulu Chapter

Within a month of announcing our newly elected officers, the Honolulu Chapter started off with a big blast on 27 January, 1994, with our Chapter's first-ever fully sponsored sleep-over at the zoo - Safari Under the Stars. It was a huge success and included behind-the-scenes tours, a BBQ dinner and nature videos. We held the 2nd Safari Under the Stars on 18 November, 1994.

Our 4th Annual Bowling for Rhinos was also a great success. Held on 14 May, at Pali Lanes in Lailua, the event raised close to \$4000.00 for Ngare Sergoi. Everyone did a super job organizing and raising money. Baseball caps with a rhino logo were distributed to bowlers with the purchase of a bowling packet.

University of Hawaii primatologist, Dr. Kim Kimminalu, was a guest lecturer at one of our meetings and spoke on the importance of research in zoos. Another one of our meetings was co-hosted by the Sea Life Park training department staff. We went on a behind-the-scenes tour of the dolphin and false killer whale holding facility and attended a private dolphin training session at the Hawaii Ocean Theater. This was where basic operant conditioning techniques and husbandry practices were demonstrated. We were also very fortunate to get a close-up look at their unique "wholphin" (*Pseudorca/Tursiops* hybrid) with her own calf alongside her!

The most fun and most surprisingly successful fundraiser was our first-ever AAZK Garage Sale on 2-3 June. We raised over \$300.00 in the first two hours and finished up on Sunday with a grand total of \$621.35. All unsold items were donated to the Assistance League of Hawaii Thrift Shop. Thanks to the Vannatta family for the use of their garage and for their patience.

Throughout the year, T-shirt and patch sales have not been great. With intensified sales tactics we hope to do better next year on these items. A new T-shirt logo has also been suggested. This year was planned as being a member-building year and we did increase the Chapter roles by about 5 or 6 people. We also were able to catch the interests of

other outer-island zoo facilities such as Molokai Ranch and the Maui County Zoo. We plan to end our year with a meeting at the Waikiki Aquarium in December where new Chapter officers will be elected and final votes will be tallied for our fund-spending options.

Nineteen-ninety-four has been a learning year for many of us--with all of this year's successes under our belts, we're looking forward to an even better and more exciting year in 1995.

To all our fellow AAZK Chapters: Mele kalikimaka and Hauoli makahiki hou (Merry Christmas and Happy New Year)!

--LeeAnn Anderson, President

San Diego Chapter AAZK

Well, Fall is upon us, and with the holidays right around the corner, we have the perfect gift for you - an Animal Buns Calendar. We want to thank everyone who has already supported this fundraiser and we hope your Chapters are profiting from it too.

If you would like to order any @ \$22.95 retail and \$5.38 wholesale (minimum order of 25) plus shipping, just write the San Diego Chapter, P.O. Box 551, San Diego, CA 92112 or call (619) 231-1515 Ext. 4672.

We also want to thank everyone in Omaha, NE for showing us a good time at the 1994 AAZK National Conference. Five of our Board members were able to attend. We all had an educational and entertaining trip. We are looking forward to Denver's Conference next year.

We have had a great line-up of speakers lately. On 1 November we were lucky enough to have Michael "The Rhino Man" Wericke, give us an update on the latest situation for all rhino species.

In October we had the Director of the San Diego Zoo Pathology Dept., Dr. Linda Lowenstein, give us some very interesting facts on the largest zoo pathology department in the world. In September, we had Alan Mootnick, a

Chapter News, Continued

specialist on gibbons tell us about their status in the wild and what he is doing with his collections.

We wish everyone a happy and safe holiday season.

--Nicki McGahey, President

Metro Toronto Zoo AAZK Chapter

Our Chapter's most ambitious undertaking of the year was hosting a seminar on neotropical migrants entitled "Songbirds in Trouble, Challenges and Solutions". Five speakers from organizations involved in songbird conservation outlined their work in in stimulating presentations.

Michael Measure of F.L.A.P. (Fatal Light Awareness Programme), who offered gruesome evidence that great numbers of our songbirds, which migrate at night, are lost every year while migrating through our cities. On cloudy nights, the birds are fatally attracted to the lights of our skyscrapers. Some are killed or injured on impact, others die of exhaustion or are preyed upon by gulls, unable to escape from the maze of bright streets. If cities in flight paths turned off these lights during migration times, this needless waste would stop. F.L.A.P. has spent years trying to convince downtown Toronto to do this, as yet, to little avail.

Our other recent concerns have been commitments to support two keeper-initiated conservation efforts. We held a pancake breakfast for F.R.A.W.G. (Friends of Rare Amphibians of the Western Ghats), a small organization run by keepers at the Minnesota Zoo, dedicated to preserving the amazing herpetological diversity of this region of India. One hundred dollars raised here translates into \$3000 worth of research there. That's incentive to fundraise.

The other organization is COTERC (Canadian Organization for Tropical Education and Rainforest Conservation). Founded by our own Marilyn Cole, COTERC operates Cano Palma Biological Station near Tortuguero in Costa Rica. Our Chapter contributed the cost of a much needed canoe.

We've also decided to support the International Crane Foundation by becoming associate members. The Foundation's work represents the epitome of conservation in its efforts to persuade, by examples, governments around the world that cranes, and their habitats, are worth saving.

--Eric Cole, Chapter Liaison



A cartoon illustration of a rat and a mouse. The rat is standing on its hind legs, holding a small object in its front paws, while the mouse looks up at it. They appear to be in a kitchen setting with some food items on the counter.

**THE
GOURMET
RODENT™**

RATS AND MICE

Bill & Marcia Brant
6115 SW 137th Avenue
Archer, FL 32618
(904) 495-9024
FAX (904) 495-9781

© All Rights Reserved

L.I.N.K.
(Liaison and Information Network for Keepers)

Coordinator for the LINK System: Mark de Denus, Assiniboine Park Zoo, 2355 Corydon Ave., Winnipeg, Manitoba, Canada R3P OR5. (204) 986-6921 [w]; (204) 837-2916 [h]. Assistant LINK Coordinator - Ric Urban, Houston Zoological Gardens, Houston, TX, 1513 MacGregor Way, Houston, TX 77030 (713) 520-3234 [w].

Regional Coordinators

ALABAMA - Fred Alvey, Zoo Atlanta, 800 Cherokee Ave. S.E., Atlanta, GA 30315

ALASKA - Vacancy

ARIZONA - Vacancy

ARKANSAS - Debbie Jackson or Ann Rademacher, Little Rock Zoological Gardens,
#1 Jonesboro Dr., Little Rock, AR 72205

CALIFORNIA (Northern) - Jean Lai, Oakland Zoo, 9777 Golf Links Rd., Oakland, CA 94605 and
Ruby Lara, Sacramento Zoo, 3930 West Land Park Dr., Sacramento, CA 95822-1123

CALIFORNIA (Southern) - Vacancy

COLORADO - Vacancy

CONNECTICUT - Jeanette Nadeau, Roger Williams Park Zoo, Providence, RI 02905

DELEWARE - Theresa Maas, Philadelphia Zoo, 34th & Girard Ave., Philadelphia, PA 19104

FLORIDA - Rick Smith, 5752 Stoneridge, Orlando, FL 32839

GEORGIA - Fred Alvey, Zoo Atlanta, 800 Cherokee Ave. S.E., Atlanta, GA 30315

HAWAII - Vacancy

IDAHO - Holly Liappas, Tautphaus Park Zoo, P.O. Box 50220, Idaho Falls, ID 83405

ILLINOIS - Pat Swieca, 5710 W. Cullom Ave., Chicago, IL 60634

INDIANA - Jan Weinig, P.O. Box 197, Michigan City, IN 46360

IOWA - Carla Wieser, Omaha's Henry Doorly Zoo, 10th St. & Deer Park Blvd., Omaha, NE 68107

KANSAS - Vacancy

KENTUCKY - Scott Wright, Cleveland Metroparks Zoo, 3900 Brookside Park Dr., Cleveland, OH 44109

LOUISIANA - Rhonda Votino, 3535 Houma Blvd., Apt. 109, Metairie, LA 70006

MAINE - Jeanette Nadeau (see addresses under CT)

MARYLAND - Theresa Maas, Philadelphia Zoo, 34th & Girard Ave., Philadelphia, PA

MASSACHUSETTS - Jeanette Nadeau (see addresses under CT)

MICHIGAN - Tim Sampson, John Ball Zoo, 1300 W. Fulton, Grand Rapids, MI 49504

MINNESOTA - Tim Hill, Minnesota Zoological Gardens, 13000 Zoo Blvd., Apple Valley, MN 55124

MISSISSIPPI - Jeannie Frazier, Jackson Zoological Park, 2918 W. Capitol, Jackson, MS 39209

MISSOURI - Vacancy

MONTANA - Holly Liappas (see address under Idaho)

NEBRASKA - Carla Wieser (see address under Iowa)

NEVADA - Patricia Simonet, Wildlife Safaris, P.O. Box 6735, Incline Village, NV 89450

NEW HAMPSHIRE - Jeanette Nadeau (see addresses under CT)

NEW JERSEY - Frank Leonard, Bronx Zoo, 185th & Southern Blvd., Bronx, NY 10460

NEW MEXICO - Vacancy

EAST NEW YORK - Frank Leonard, Bronx Zoo, 185th & Southern Blvd., Bronx, NY 10460

WEST NEW YORK - Alan Baker, Burnet Park Zoo, 500 Burnet Park Dr., Syracuse, NY 13203

NORTH CAROLINA - Lucy Segerson, North Carolina Zoo, Rt. 4, Box 83, Asheboro, NC 27203

NORTH DAKOTA - Bob Debets, Assiniboine Park Zoo, 2355 Corydon Ave., Winnipeg, Manitoba
Canada R3P 0R5 (204) 986-6921 [w]

OHIO - Scott Wright, Cleveland Metroparks Zoo, 3900 Brookside Park Dr., Cleveland, OH 44109

OKLAHOMA - Debbie Jackson or Ann Rademacher (see addresses under AR)

OREGON - Anna Michel, Washington Park Zoo, 4001 SW Canyon Rd., Portland, OR 97221

PENNSYLVANIA - Theresa Maas, Philadelphia Zoo, 3400 W. Girard, Philadelphia, PA 19104

RHODE ISLAND - Jeanette Nadeau (see addresses under CT)

SOUTH CAROLINA - Lucy Segerson, North Carolina Zoo, Rt. 4, Box 83, Asheboro, NC 27203

SOUTH DAKOTA - Bob Debets (see address under ND)

TENNESSEE - Gail Karr or Cindy Pinger, Memphis Zoo & Aquarium, 2000 Galloway, Memphis, TN 38112

TEXAS - Connie Dieringer, Caldwell Zoo, P.O. Box 4280, Tyler, TX 75712

UTAH - Vacancy

VERMONT - Jeanette Nadeau (see addresses under CT)

VIRGINIA - Theresa Maas, Philadelphia Zoo, 34th & Girard , Philadelphia, PA 19104

WASHINGTON - Vacancy

WEST VIRGINIA - Theresa Maas, Philadelphia Zoo, 34th & Girard , Philadelphia, PA 19104

WISCONSIN -Wayne Hazlett, 3768 S. 89th St., Milwaukee, WI 53228

WYOMING - Holly Liappas (see address under Idaho)

DISTRICT OF COLUMBIA - Theresa Maas (see address under PA)

Province of Ontario - Vacancy

Provinces of Manitoba & Saskatchewan - Bob Debets (see address under ND)

Province of Quebec - Vacancy

Provinces of Alberta & British Columbia - Grant Tkachuk, 10139 157th St., #206, Edmonton, Alberta T5P 2T9

Atlantic Canada - Bernard Gallant, RR # 7, 1081 Ryan Road, Moncton, N.B., E1C 8Z4

Institutions wishing to advertise employment opportunities are asked to send pertinent data by the 15th of each month to: Opportunity Knocks/AKF, 635 Gage Blvd., Topeka, KS 66606. Please include closing dates for positions available. There is no charge for this service and phone-in listings of positions which become available close to deadline are accepted. Our phone is 1-800-242-4519 (U.S.); 1-800-468-1966 (Canada). Our FAX is 913-273-1980.

CHIMPANZEE CAREGIVER...two (2) full-time positions open. Requires two years of college level course work, two years experience in the care of exotic animals; OR an equivalent combination of experience which provides the required knowledge, skills and ability. Primate experience a plus. Assist in the responsibility of caring for approximately 80 chimpanzees (*Pan troglodytes*) in a breeding colony. Must be willing to make at least a two-year commitment. Excellent benefits. EOE. Applicants must have a negative TB skin test, negative hepatitis B surface antigen test and evidence of a measles booster or natural disease prior to employment. Send letter of interest (with requested salary), resumé, and three (3) letters of reference to: Jo Fritz, Director, Primate Foundation of Arizona, P.O. Box 20027, Mesa, AZ 85277-0027. Positions open until filled.

ZOO KEEPER...requires one year paid zoo experience or degree in related field. Applicants must be able to work well with the public and a small keeper staff in a small, children-oriented, AZA accredited zoo. Duties include animal care, exhibit maintenance, interaction with the public. Must be willing to work weekends and holidays. Pays \$8.00 to \$10.00 per hr., plus benefits. Send resumé to: Greg Owens, Curator, Happy Hollow Zoo, 1300 Senter Rd., San Jose, CA 95112.

ELEPHANT KEEPER...wanted for hands-on with 1.5 African elephant program. Great opportunities to use your skills. Competitive wages and rural living. If interested contact Jack Mortenson, DVM at Wildlife Safari, P. O. Box 1600, Winston, OR 97496.

ZOO KEEPER...swing position caring for exotic mammals, birds, reptiles, amphibians, fish, and domestic animals. Requires A.S. or B.S. degree in an animal-related field. Salary \$7.00/hr., plus excellent benefits. Send resumé by 15 January 1995 to: Mike Borders, Scoville Zoo, 71 S. Country Club Rd., Decatur, IL 62521-4470.

ZOO KEEPER/RELIEF...must be comfortable working within all areas of the zoo. Duties include care, feeding, and health management of the animals. Must be able to work well with the public. Requires a minimum of a high school diploma/GED with animal experience; college degree in related field preferred. Full benefit package included. Send resumé to: Lane Theriac, Washington Park Zoological Gardens, Lakefront, Michigan City, IN 46360.

The following two (2) positions are available at the Tracy Aviary, 589 East 1300 South, Salt Lake City, UT 84105. If interested, send resumé and other information (e.g. Video) to Beryl Rullman, Executive Director at the above address.

BIRD SHOW TRAINER/PRESENTER...requires at least three (3) years experience in a similar position, strong interpersonal, presentation and supervisory skills. Degree in education with broad knowledge of conservation/environmental studies preferred.

BIRD SHOW TRAINER ASSISTANT...requires at least two (2) years experience in a "hands-on" bird training situation. Falconry experience desirable.

CAMP SEA WORLD INTERNSHIPS...applications are now being accepted from undergraduate students. Applicants must be available from 22 May through 1 August 1995. Application deadline: 28 February 1995. This is a paid internship and students may arrange to receive academic credit. Interns are responsible for their own transportation and housing. Interns are involved in the operation of Camp Sea World, a program that introduces students from preschool-12th grade to the ocean environment and its inhabitants. After two weeks of park orientation and training, interns will assist Sea World instructors with every aspect of camp operations, from preparing class materials to implementing games and activities. Interns must be willing to teach in front of large groups, so teaching experience and a basic knowledge of marine life are helpful. For application forms and further information, contact: Judy Jenkins, Education Dept., Sea World of Florida, 7007 Sea World Drive, Orlando, FL 32821-8097; Phone (407) 363-2393 and FAX (407) 363-2399.

Opportunity Knocks, Continued

BIRD KEEPER...requires degree in biology or related field and one year's paid experience with birds. Must be self-motivated, dependable, adaptable and team-oriented with good communication skills. Duties include all areas of captive management and interaction with the public. Salary \$15,000-\$17,000 with benefits. Send letter with goals and interests/resumé/references to: Lynn Leindecker, Curator of Birds, National Aviary in Pittsburgh, Allegheny Commons West, Pittsburgh, PA 15212.

ZOOKEEPER...requires high school diploma and valid driver's license. Physically demanding. Will rotate to all animal areas initially. College degree and bird experience preferred. Salary \$6.00/hr and benefits. Send resumé to: Pueblo Zoo, 3455 Nuckolls Ave., Pueblo, CO 81005 Attn: M. McBirney. Call (719) 561-8686 for more information. Position closes 1 Jan. 1995.

APPRENTICE ANIMAL TRAINER...working with infant big cats, lesser cats, primates, bears, and many other species. Will be on stage with educational, interactive programs. Must live on site. Some traveling. All living expenses paid, vehicle provided, salary negotiable. Call Operations Manager, Seneca Interpretive Center, Seneca Rocks, WVA at (304) 567-2353.

VETERINARY TECHNICIAN INTERNSHIP...candidate should be a graduate of an accredited two-year veterinary technician program leading to state and national certification. Consideration will be given to Bachelor of Science holders or certified medical technologists on a case by case basis. Applicant should have a working knowledge of veterinary and laboratory procedures. Housing and stipend provided. Applicants should send a letter describing their background and professional interests, a resumé, the names of two people (including their phone numbers) that we can contact as professional references, and a prioritized listing of three, 3-month blocks of time which would be feasible for the applicant to: Technician Internship Program, Attn: Cathy B. Thurman, R.V.T., Fossil Rim Wildlife Center, P.O. Box 2189, Glen Rose, TX 76043.

ZOOKEEPER...the North Carolina Zoo is looking for a Keeper I at our Sonoran Desert Exhibit. The Desert Exhibit is a diverse habitat with reptiles, birds, mammals, and invertebrates. Prefer at least one year of experience with lizards and birds, experience with North American animals highly desirable. Minimum starting salary \$17,252.00. Please send resumé by 30 December 1994 to: John Groves, NC Dept. ENVIR/HLTH/NAT RES/NC ZOO, Attn: Cami Richardson, 4401 Zoo Parkway, Asheboro, NC 27203.

ZOOKEEPER/MAMMALS...college graduate in biological sciences preferred or equivalent training and experience in zoo or related field. Must be able to work with a wide variety of animals, large carnivore experience preferred. Salary \$16,700.00 or commensurate with experience and a full benefits package. Send letter and resumé by 23 December 1994 to: Kyle McNeil, Human Resources, Dreher Park Zoo, 1301 Summit Blvd., West Palm Beach, FL 33405-2098.

GROUNDS /ANIMAL KEEPER...AZA related organization (private farm north of Atlanta with large collection of kangaroos, also small mammals - Not open to public). Fulltime duties include (but not limited to) farm maintenance and animal care. Construction, mechanical skills and zoological education, experience necessary. Must be physically fit, willing to work outdoors and on weekends. We are looking for a mature responsible employee who would enjoy working in a quiet, picturesque environment. Salary commensurate with experience. Send resumé, salary history and three (3) references to: Nelson's Twin Oaks Farm, 13305 Bethany Rd., Alpharetta, GA 30201. Position to be filled immediately.

EXECUTIVE DIRECTOR...position available with The National Association of Interpretation. Responsible for effective operation of Association; execution of business operations/functions; support of educational and professional development activities. Must have minimum of Bachelor's degree and proven management track record. Advanced degrees preferred. Qualifications include excellent organizational and personal management skills; skills in contract negotiation and implementation; ability to work with BOD and Exec. Committee structure; self-motivated/problem solver; skilled in computer, oral/written/interpersonal communication; and fiscal management. Prefer experience in small business operations and management as well as knowledge/experience in the field of interpretation. Salary range: \$45,000-\$55,000 with full benefits package. Starting date 1 March 1995 or as negotiated. Submit letter of application, detailed resumé and three letters of reference to: Cem M. Basman, Chair, NAI Search Committee, c/o Dept. of Natural Resource Recreation and Tourism, Colorado State Univ., Ft. Collins, CO 80525. Deadline 31 December 1994. EOE.



AAZK Membership Application

Name _____ *check here if renewal []*

Address _____

City _____ State/Province _____ Zip _____

U.S. Members

- \$30.00 Professional/U.S.
Full-time Keepers
- \$25.00 Affiliate/U.S.
Other staff & volunteers
- \$25.00 Associate/U.S.
*Those not connected with
an animal facility*
- \$50.00 or up Contributing/U.S.
Individuals
- \$50.00 or up Institutional/U.S.
*Organizations/Institutions
(requires Board approval)*

Canadian Members

- \$35.00 Professional/Canada
Full-time Keepers
- \$30.00 Affiliate/Canada
Other staff & volunteers
- \$30.00 Associate/Canada
*Those not connected with
an animal facility*
- \$55.00 or up Contributing/Canada
Individuals
- \$55.00 or up Institutional/Canada
*Organizations/Institutions
(requires Board approval)*

International Members

- \$40.00 International
*All members outside U.S. &
Canada regardless of category*

Library Only

- \$20.00 Library
*Available only to
established libraries*

Zoo Affiliation (if any) _____

Zoo Address _____

Title _____

Work Area _____

My check is enclosed (AAZK, Inc.)

Please charge to my credit card

MASTERCARD _____ VISA _____

Card # _____ - _____ - _____ - _____

Name on card _____ Expiration Date _____

Signature _____

Mail this application to : AAZK Administrative Offices, Topeka Zoo, 635 S.W. Gage Blvd., Topeka, KS 66606-2066 U.S.A. Make checks/money orders payable to AAZK, Inc. Must be in U.S. FUNDS ONLY.

Membership includes a subscription to *Animal Keepers' Forum*. The membership card is good for free admission to many zoos and aquariums in the U.S. and Canada.

American Association
of Zoo Keepers, Inc.
635 S.W. Gage Blvd.
Topeka, KS 66606-2066

Address Correction Requested

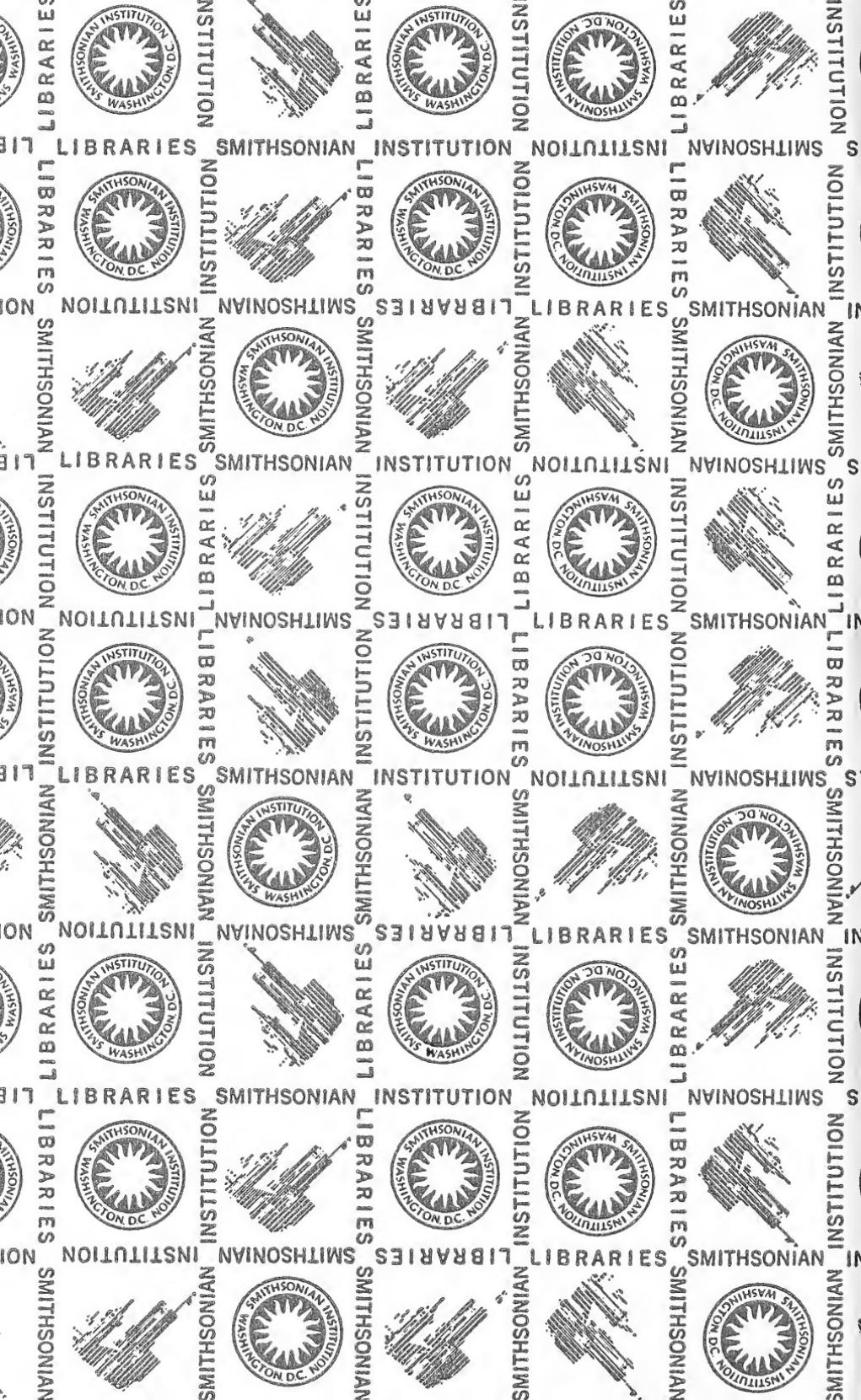


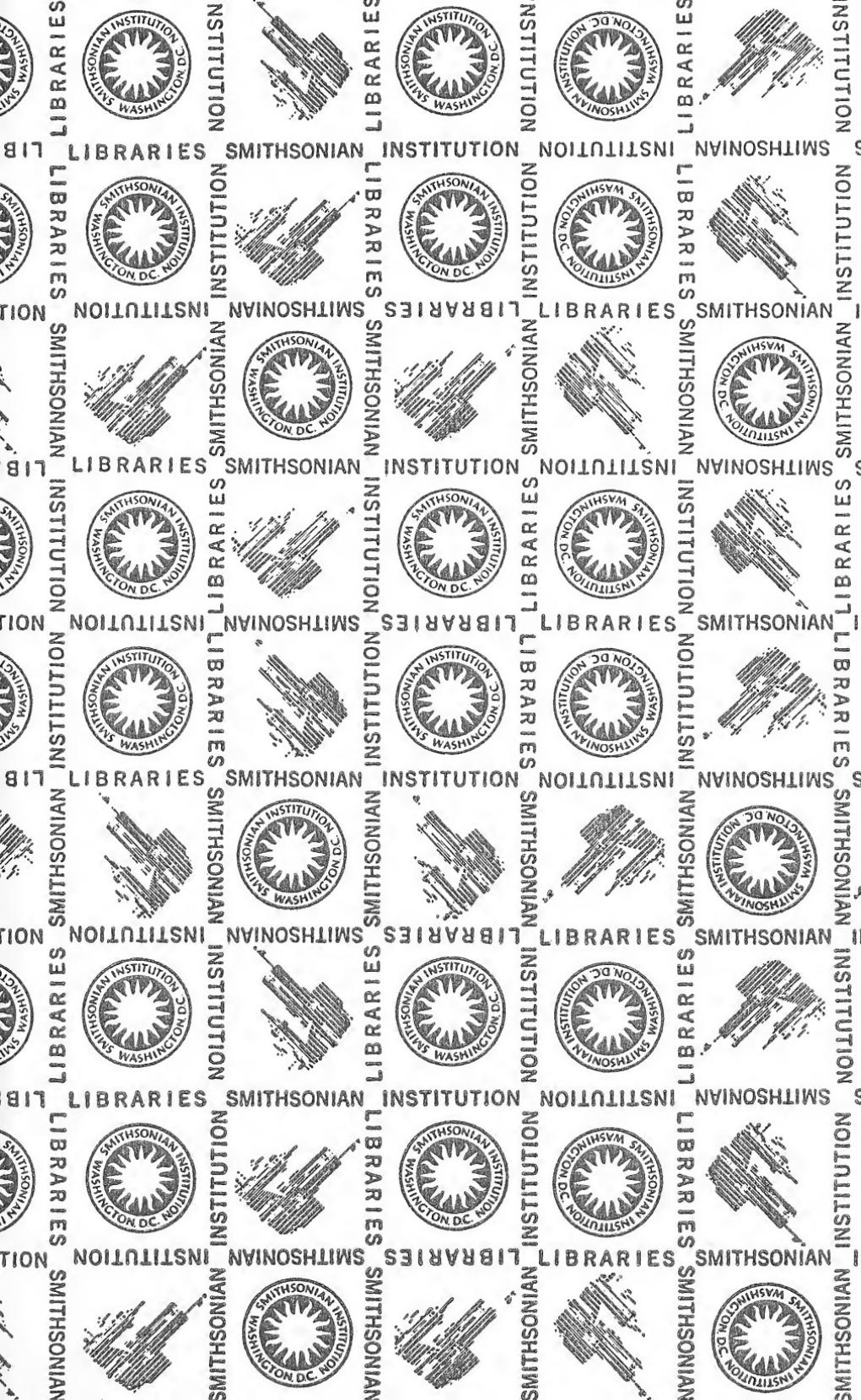
National Zoological Park
NZP Library
Washington, DC 20008

3/95

263 LR
06/01/95 198115 XL 179
PRINTED IN U.S.A.

NON-PROFIT ORGANIZATION
U.S. POSTAGE
PAID
PERMIT #646
TOPEKA, KS 66603





SMITHSONIAN INSTITUTION LIBRARIES



3 9088 01063 8575